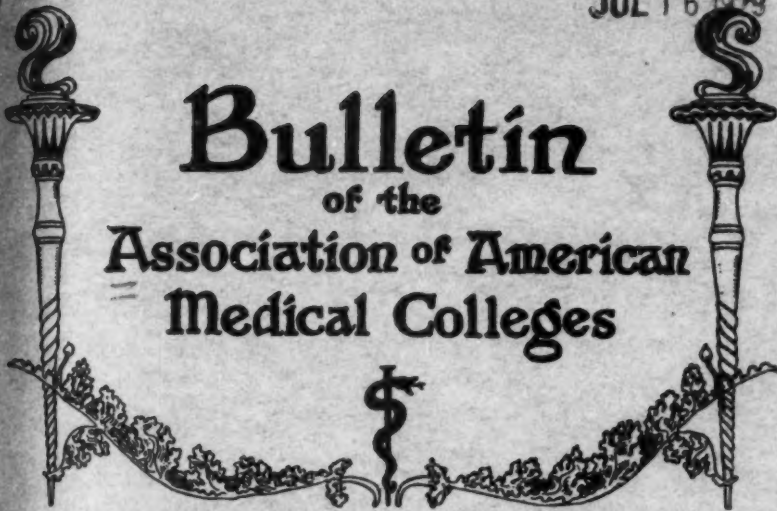


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TEACHING OF OBSTETRICS*

W. W. CHIPMAN

Professor of Obstetrics and Gynecology, McGill University
Faculty of Medicine, Montreal

It is a great honour that I enjoy this morning, to address this association of medical teachers.

This is your thirty-eighth annual meeting, and I recall to my mind that your Association represents some eleven thousand persons who are teaching today in the Class A medical schools of the United States and Canada. This is certainly a large proletariat. McGill's contribution to this number is 176 men and women, who comprise our Medical Faculty.

Our medical faculties are large, the labour of teaching is great, and, as regards our curricula, it seems to me that not always in a multitude of counsellors is there much wisdom—or more correctly, safety.

My purpose this morning is not to attempt a set address, but rather to give you, first, a few general conclusions regarding the teaching of medicine, and afterward to pass to a special consideration of the teaching of obstetrics, I include, here, gynecology. This latter phase of my subject I shall illustrate with lantern slides.

First, then, a few considerations concerning the teaching of medicine.

We all admit that teaching is a vital, and all important business. And there are three terms to this great equation: (1) the teacher; (2) the student; (3) the curriculum. And these three terms demand a right proportion of consideration. Oddly enough, it is the third term of this equation—the curriculum—that we labour most, labour and belabour; rather neglecting, or losing sight of, the other two, the all important two: the teacher and the student. And this leads me to my first consideration, namely, the teacher.

The art of the teacher is a great art; professed by the many (witness our eleven thousand teachers) but, alas, possessed by the few. The good teachers that I have known have been something like Angels' visits, few and far between; while, curiously enough, I have never met a man who willingly confessed himself a poor teacher. There is a strange egoism inherent in the business. Assuredly, there is some truth in Bernard Shaw's contention, that "Those who can, do, and those who can't, teach." Albeit, we have learned from experience that a good teacher is born, can only partly be made, must in a certain sense be a good doer; a doer at least as regards his mental processes, for he must have a lucid, a well-ordered, and an imaginative mind, touched, God willing, with a dramatic instinct.

*Read at the Thirty-eighth Annual Meeting of the Association held in Montreal, Oct. 24-26, 1927.

In order to teach, we must truly know, and Novalis told us, you remember, that we only know in so far as we do, or make.

A good teacher, then, is the school's greatest asset, for he and his fellows are the University itself. Accordingly, he deserves our first consideration.

And now, how shall we procure him? How shall we cultivate the species? Only, of course, by careful training and selection. No longer must the teacher fall in a haphazard way, for one reason or another, into his half-hearted undertaking, his academic career designated by that of Topsy's, "I spec's I growed!" No, this will never do. And here is my first suggestion.

I suggest that we have fewer teachers, say half the number, and that we carefully select and train them. There are far too many demonstrators in every medical school, at least, there are in mine. While demanding more, we must be prepared to give more, in the way of academic status, and even actual remuneration. There is no sufficient reason why a medical school should be altogether a philanthropic institution.

I believe in competitive teaching, and I would encourage it, in the so-called "extramural" teacher. Such a one, you remember, offers a course in any subject, and the student may exercise a choice in the matter. There is nothing like competition, even in the business of teaching, to "get results."

And so my first suggestion is, to secure the teacher. In my judgment, he is of far more importance than any change in the curriculum, or in the number of unit hours allotted to any subject. We should begin at the beginning, secure such a teacher who, even as the Angel, may go down and move the young unthinking waters of the pool.

And now we come to the student, the young man whom we teach, be he rarely something of a genius, or more commonly somewhat of a dunce. Fortunately for us, and for the profession that we represent, the days of large classes are past. No longer is the success of a medical school measured entirely by the number of its undergraduates. It has now become rather a question of quality than of quantity, and this is a forward step in our progression. We have today some nine thousand practising physicians in the Dominion of Canada, and the demand on our schools is imperative, only to elevate and improve the quality of our graduates.

I have no quarrel with our entrance requirements, based as they are, not only upon an academic standing, but also upon an applicant's character and personal qualifications. W. W. Keene, the doyen of our profession, puts it well when he says, "Every physician *should* be a gentleman; the obstetrician or the gynecologist *must* be one." A hundred matriculants are enough for any medical school, for this allows a 20 per cent mortality, and gives each year a graduating class

of 80 men. And this number is sufficient to meet every requirement.

And now, how is this student to work, or to be made to work in order to get the best change for his sixpence. Education, in its etymology, means not at all a pushing in, a cramming with information—but a leading or a drawing out of the faculties that we possess. Young men are not as like as marbles, and their minds are just as different as their bodies; each one has his knack, his individual way of understanding and of doing things. The teacher must adapt himself to each, if the communion between them is to be productive, “if the cross between them is rendered fertile.” Each student must explore for himself, and discover for himself. Each one must be his own Columbus. And in this exploration, the wise teacher travels with the student, and inspires the quest, seeks and finds with him, so to speak. For it is written here, as in another place, that each one must work out his own salvation. This is the so-called inductive, the experimental, the heuristic method, where the student is led, or made, to teach himself. Old as we are, experience, a practical experience, is still the greatest teacher.

The student is so led slowly to explore the whole curriculum; to establish, as it were, its unity for himself. He must blaze his own trail.

Special care is requisite when the student first meets the Patient—Patient with a capital P—the great acquaintance of his professional life. The first days of clinical instruction are truly all important days, and in my experience men oftenest go wrong in a professional sense, just when they begin this craftsmanship. These are dark days, where the palpating hand is clumsy and paralytic, with the new stethoscope in the ears, and the plessor finger with only a sausage note. If, in this time of sorrow, the student possesses a good teacher, he should give daily thanks to his Maker. Under his guidance, slowly the student teaches himself, gathers his own perceptions. We all can remember that a mistaken perception is infinitely worse than no perception at all.

Small group teaching is essential here, with each student shown how to develop his own method, or knack; how to make the most of his individual talent. The Master is with his group of apprentices.

There must, of course, be time for the student to read and to think. If his interest is aroused, he will do both in his own way. An awakened interest is really the crux of the whole situation. “More time to himself” is our modern slogan, and there is here great need of care and wisdom. The average youth is lazy; if he is not, there is something wrong with him. It is a manifestation, if you like, of an anabolic surplus, and rather a proof that he will last the distance. And it is, indeed, a “gruelling” race that lies before him. He is lazy, and so in my judgment, a supervision, constant, watchful and covert is always requisite.

The student, then, must teach himself, teach himself to be and to become a practitioner of medicine; or, in his turn, a teacher, a good academic citizen.

And this brings me to the curriculum, which is at first sight the more practical term of the equation. At first sight only, for, given the right teacher and the proper student, the rest follows naturally enough.

We remember that at McGill some 90 per cent of our graduates become practitioners of medicine. Accordingly, our curriculum has been devised to suit the needs of this large majority, and to prepare them for this practise.

I think I may say that we have not done so badly, that our five years course is wise enough, with the last year devoted, as it is, to hospital service. I like our trimester system. The tendency in all medical schools is not only to load but to overload the curriculum; to render the course too ornate and elaborate; to divide and subdivide; to create new specialties; until it would almost seem that we went in actual fear of missing something.

As teachers we are all alive to this great danger, the danger of repletion. We must agree upon a basic course of undergraduate study, a "co-operative curriculum", to use Dr. Zapffe's term. And having so agreed, we must stick to it. After all, the undergraduate course is but preparatory, a preparation for the actual study and practice of medicine. The so-called specialties should have small space in this part of the instruction. They must rather be relegated to postgraduate work. There is a great and growing future for the postgraduate school. Everything but the essentials should be placed therein.

I am sure we all believe in a gradual maturity of consciousness; and accordingly, for the undergraduate I see no rhyme or reason for the electives. It is impossible for the average man wisely to choose until he has some appreciation of the choice; until he sees, as it were, a rough draft of the whole picture, the picture of life and death, with humanity in the foreground. For that is, after all, what his medical education means. Even the exceptional man, interested only in purely scientific study, is made broader and more human by the clinical work. The future school of medicine will have less trouble with him as a teacher of undergraduates. He will have acquired wider points of contact, and his outlook on life will be better balanced and more humane.

Sydenham put it well when he said, "We only become a physician by being a physician"; and each and every graduate of every school should begin this art as an interne in a hospital service.

For some years I have used a scheme that shows how obstetrics and gynecology interlock. (Table 1). In the third year, forty lecture demonstrations are given. They are not systematic lectures, but I en-

deavor, in a sense, to practice what I have just preached. We go over the subject together. There is a good deal of question and answer. What are the special difficulties of the student? He takes notes, it is true, but only a few, and he leaves the opposite page blank to be annotated at his evening reading, for he is compelled, as it were, to read.

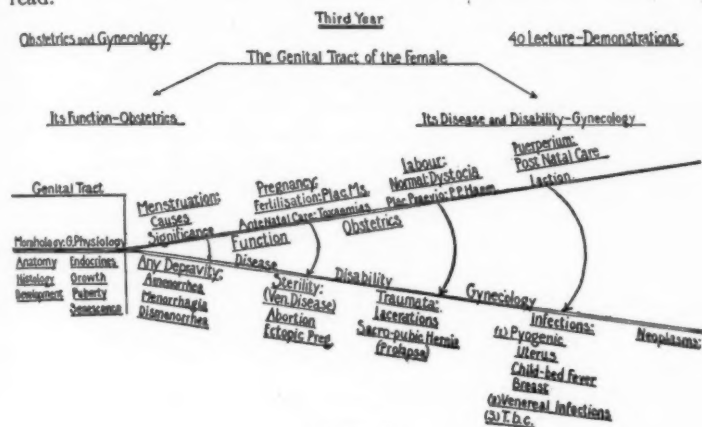


TABLE I

Frequently some question will come up—because we are referring continually to anatomy, physiology and biology—about the cell—its shape, its growth, its nutrition, the clotting of blood, a mucous membrane, a section of the skin. The man, who is responsible for the question, if he is chosen (and I frequently choose the men in the back row) is asked to prepare a short description and read it before the class in two days. It is astonishing how he works at it. Ask him to go back to Professor Tait or Professor Whitnall and get the newest thing, we will say, in the teaching of comparative anatomy or some problem of physiology, and I can assure you (and I am sure your experience will bear me out) that what I get from it is almost more than what I give.

The genital tract of the female is a hollow cylinder bifurcate; its function—obstetrics; its disease and disability—gynecology. And, then, there comes the genital tract, its description, and here you will find anatomy, histology and development. We go into that. Then we come to general physiology, growth, the endocrines, puberty, senescence. We begin with the genital tract, describe it and its functions; for instance, menstruation—its causes, its significance.

Then we drop down, as the arrow points, and we speak of any depravity. Is there any depravity—amenorrhoea, menorrhagia, dysmenorrhoea?

Then we go to natural pregnancy, ovulation, fertilization, formation of the placenta and membranes, antenatal care, toxemias. Next, comes the question of sterility, and I deal shortly here with venereal disease, abortions, ectopic pregnancy.

We then come to labor—normal, physiological labor, and I always remember the remarks of my old teacher, Sir Halliday Croom. He always began his lecture in this way: "Parturition is a physiological process, naturally identical in the countess and in the cow." And he had his class right up on their toes. Labor, then, normal, and the emphasis of that normality; dystocia, what that means; placenta praevia; postpartum hemorrhage; and, as the result of labor, unfortunately too often, trauma, laceration, sacropubic hernia, a prolapse of the uterus, bladder, or anterior wall of the rectum. Then there is the puerperium, postnatal care and lactation. Then we drop to infections of the uterus, childbed fever; venereal infections and tuberculosis, and last come neoplasms. All tumors and neoplasms are dealt with and in this way the two subjects naturally interlock, locking them in that way with one man teaching the two subjects.

I firmly believe that the senior teacher should take the junior student, at least at first.

Such an interlocking makes for economy. It makes for better practice and for better teaching.

We have forty lectures, or forty so-called demonstrations. I illustrate these as profusely as I can, naturally with lantern slides and diagrams, and the student is asked to draw for himself, and he is told that he can draw anything. The process of digestion can be drawn perfectly and he must draw it in his notebook.

Shortly afterward, I conduct a personal ten-minute interview with each of the students. It is an examination, if you like to call it that, but it is more. I get a knowledge of the man, perhaps a knowledge of his difficulty, where his trouble has been, and I ask him a question or two, of course, and see how clear he is or whether he is in trouble. I call that the examination at the end of the third year.

Now comes the fourth year and here we introduce the student to the patient. This year there are twenty men in each trimester and for these twenty men we have divided the subject of obstetrics clinically into four main groups. I think it is a very good division: dystocias, hemorrhages, infections and toxemias. That covers the subject clinically.

Dr. Little gives an hour on Monday morning at nine o'clock. He talks, first, of normal pregnancy, the normal labor, the lie of the child, and then goes on to speak of the abnormalities. Following him is Dr. Burgess, who treats of hemorrhage, uterine hemorrhage. That is a very large subject. Then Dr. Goodall deals with infections, and Dr. Duncan with toxemias. That is from nine to ten.

Then the class is broken up into two groups of ten men each, and I believe it is a good thing to give a separate teacher a group of men and make him responsible for that group. You have at once competitive teaching in your own department, and it is interesting to see the emulation, the rivalry between the two respective teachers, and they take it as a personal grievance if one of their men gets "spun."

TABLE 2
Obstetrics and Gynecology—1927-1928
4th Year

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 10:00	1st 8 hrs. Dystocia Dr. Little 2nd 8 hrs. Hemorrhages Dr. Burgess 3rd 8 hrs. Infections Dr. Goodall 4th 8 hrs. Toxemia Dr. Duncan	Same		Same	Same	Theatre Clinic Gynecology Dr. Chipman
10:00 to 11:00	Mannikin Drs. Melhado and Campbell	Same		Same	Same	
1:30 to 2:30			Theatre Demonstra- tions Drs. Chipman or Little			

These men are taken into the case room and shown the ordinary case, the normal case, the parturition (the mannikin is here) from ten to eleven, by Dr. Melhado and Dr. Campbell. On Tuesday, the schedule is the same. On Wednesday, Dr. Little, or I, give a large clinic in the operating room or in the lecture theatre. The patient is anesthetized, and we always endeavor, in so far as we can, to get the man down off his seat, make him examine the patient. If he only puts his hand on the abdomen and you tell him what to feel and be sure he feels it, that is worth an hour of talking.

On Thursday and Friday, the schedule is the same as on Monday, and on Saturday morning, at nine o'clock, and until half-past ten, I give a clinic which deals more especially with gynecology.

I always feel that the clinic is not a success unless every man has come down and either seen a case or examined it.

The fifth year is more elaborate. Again, on Monday we follow the same plan, dystocia, hemorrhage, infections and toxemias. Now come the ward rounds. The students are taken into the ward in groups. This year they go in groups of fourteen. Dr. Goodall has a group of fourteen. Dr. Burgess has a group of fourteen. They make ward rounds Monday, Tuesday, Thursday and Friday. Then, they have the mannikin again in groups of seven. You can not

emphasize too much, I think, in obstetrics, the value of the mannikin. With the mannikin and the doll the student is actually able to do things. He applies forceps. He does a version. He does a breech extraction, and he does it again and again. We emphasize very much our mannikin teaching. Then comes the question of physical diagnosis and with this, antenatal care, and you know how we emphasize that.

TABLE 3
Obstetrics and Gynecology—1927-1928
5th Year

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9:00 to 10:00	1st 8 hrs. Dystocia Dr. Little 2nd 8 hrs. Hemorrhages Dr. Burgess 3rd 8 hrs. Infections Dr. Goodall 4th 8 hrs. Toxemia Dr. Duncan	Same		Same	Same	Theatre Clinic Gynecology Dr. Chipman
10:00 to 11:00	Ward Rounds Drs. Goodall and Burgess	Ward Rounds Drs. Bauld and Duncan		Ward Rounds Drs. Goodall and Burgess	Ward Rounds Drs. Bauld and Duncan	
11:00 to 12:00	Mannikin Drs. Fraser and Bauld Physical Diagnosis Drs. Goodall and Duncan	Same		Mannikin Drs. Burgess and Duncan Physical Diagnosis Drs. Fraser and Bauld	Mannikin Drs. Goodall and Duncan Physical Diagnosis Drs. Fraser and Bauld	
1:30 to 2:30	Ward Clinic or Minor Operations Dr. Goodall	Same Dr. Fraser	Obstetrics Theatre Demonstra- tions Drs. Chipman or Little	Ward Clinic or Minor Operations Dr. Duncan	Ward Clinic or Minor Operations Dr. Burgess	
2:30 to 4:00	Out-door to Clinics, Gyn. and Obstet. 6 men in residence	Same	Same	Same	Same	

SPECIAL NOTE: The students are in residence in groups of six for ten days. During this time they attend in the public Case Rooms, and with the interne undertake the delivery of patients on the externe service. Each student keeps a diary of his professional work while in residence.

Then we come to the outdoor clinic. We have one every day except Saturday. Both clinics run together, the outdoor clinic in obstetrics and the outdoor clinic in gynecology. You merely walk from one to the other. The average number of visits per day is thirty. We use that outdoor clinic extensively for teaching. We emphasize here the question of antenatal care. The students are in residence in the hospital in groups of six for ten days. They are on call night and day. They see everything that is done in the house.

In addition we had last year 439 patients delivered in the city in their own homes. These students go out under supervision and

conduct these labors. I believe they get more out of the house instruction, where they are thrown more on their own resources even than they do in the hospital.

During this time, too, they attended the public case rooms, and with the interne undertake the delivery. We try to make them internes as far as we can, to instruct them in actually doing things. And each student keeps a diary of his professional work while in residence! These diaries are handed in and they are edited by the staff. They constitute an extremely valuable textbook for the man afterward.

But the interesting thing is this: I have given a clinic and the student writes down what he has got from my clinic. I can only assure you that sometimes I do not quite recognize that clinic. It is of great value to the teacher as well as to the student.

I may say that the number of hours we use or employ, is about 320, with 40 in the third year and 100 in the fourth year. I have three of the attending staff in each service, a superintendent and seven internes, and we never take the internes "green," i.e., without previous hospital experience. They must have had a year in medicine or a year in surgery, preferably both, and preferably still, a year in pathology, before they come to us. They never come to us "green."

There are 212 beds in our hospital, of which one hundred are teaching beds, sixty for obstetrics, and forty for gynecology. Then we have throughout the city five stations which we man ourselves. The patients come to the station, where one of our staff meets them once a week or once a fortnight, as the case may be, and these individual stations feed, as it were, the mother house.

I am also a great believer in this: the different members of our staff send into the house whatever cases come through his own outdoor clinic; so by his own outdoor clinic he feeds his own service, and the result is that he takes a great interest in his outdoor clinic. The outdoor clinic has been devised essentially for the treatment of the patient, but also for teaching. We have one of the best arrangements I know of. There is an arrangement of cubicles with sheets in front, and the teacher, the student, the patient and the nurse have an added privacy.

The teacher there conducts the examination and shows the student how to examine and there is a private character about it. The teaching of obstetrics, clinical obstetrics, is a most difficult business, difficult because of the extreme intimacy of the whole matter, and our teachers in consequence require so much more tact and individual consideration. Obstetrics and gynecology are difficult subjects to teach for that very reason. May I say that in this great country of America I believe that the greatest need today is for the good obstetrician.

DISCUSSION

DR. WILLIAM DARRACH, Columbia University, New York: In the teaching of obstetrics at Sloane Hospital, the plan started by Dr. Studdiford has been continued by Dr. Watson. It involves the cooperation of representatives of the departments of medicine, surgery, pediatrics, dermatology, pathology, and one or two other departments. The result has been that Dr. Herrick has developed with Dr. Studdiford and Dr. Watson a very much improved technic in the handling of the arteriosclerotics and eclamptics. The department of pathology has quite changed the handling of breech presentations because of the findings at autopsies. Many cases in which the death had previously been considered as being due to asphyxia were found to be due to a broken neck. The department of dermatology has developed a new technic for the handling of syphilitic cases in mothers and children which has reduced the mortality considerably.

DR. J. M. H. ROWLAND, University of Maryland, School of Medicine: As usual, when Dr. Chipman is through, there is very little to criticize and commendation is almost unnecessary and superfluous. Of course, one can but agree with him when he talks about fewer, better paid and better trained teachers. The present trend of education, not only medical education, but all education, is such that the child is supervised from the time he enters the kindergarten, not only supervised, but entertained. He is not expected to do any work himself; he is entertained all the time. That is true in the kindergarten, grammar school, high school and in college. When he comes to the medical school, he expects it to continue; if it is not continued, to a limited extent at least, he is absolutely and entirely lost.

I do not believe in too much supervision, but I do not believe in a wise supervision, as Dr. Chipman says, "whether he knows it or not." Probably if he does not know it, it is better, but he needs a supervision which will keep him at work intelligently. I think it is the absence of supervision when the student first comes to medical school that accounts for such a large percentage of failures in the first year.

I am very happy to agree with Dr. Chipman in the matter of electives. In our school, we have not been able to find time for electives, if we do the work which is necessary for the training of a practitioner of medicine.

In our school we do not combine, fortunately or unfortunately (I have never made up my mind), gynecology and obstetrics. The course in obstetrics extends over two years; all together about 160 or 170 hours are prescribed. The third year course is made up of lectures and demonstrations on the normal pregnant woman and on the manikin, in small sections and in full classes, depending on the kind of instruction. In the fourth year, manikin demonstrations, ward classes, clinics and outdoor work are conducted. The demonstration and ward classes are largely on pathological conditions or cases with emphasis on the pathological. Indeed, I was amazed at the almost exact similarity of the work done in the two schools and, particularly, in our outdoor service. We deliver in their homes more than a thousand women each year, and all are delivered by the students under supervision.

I find that as I grow older in teaching, my tendency is to be governed largely by the mistakes which I see, my own and those of my colleagues and

friends. And I find that the greatest mistakes seem to come from the fact that either men are not taught or do not practice prenatal care. They do not see their patients often enough and because of that do not recognize, early enough, symptoms of toxemia; or they do not examine them carefully enough to make a prognosis of dystocia before it actually happens. They do not seem to appreciate the importance of bleeding during the prenatal period. My teaching is that the slightest bleeding is an important matter which demands the immediate attention of the attending physician. A very large number of men do not appreciate the importance of bleeding in the last three months of pregnancy.

Talk about watchful waiting: it is a splendid thing, and, on the whole, the best waiter is the best obstetrician, but the watchful waiting must be an intelligently watchful waiting. It is just as important not to let a woman go too long before she is delivered as it is to deliver her too soon. Of course, the delivering too soon comes twenty times as often as delivering too late, but it is important to do neither, and it is watchful and intelligent waiting that makes a man know when to interfere. I have my doubt whether there is any surgical intervention which demands as much knowledge and judgment as the decision as to the proper time to apply forceps in a delayed case.

Another thing in which I find men failing, and which I attempt to impress forcibly, is that in all bleeding cases the conservation of blood is all important from the beginning to the end of the case. I remind them always, but they do not seem always to remember it, that the woman who comes to operative delivery after having lost a tremendous amount of blood, is not a good surgical risk; i.e., she is not a good subject for an operative delivery and stands a much greater chance of infection than a woman who has not lost blood. I try to teach them not to be too meddlesome in the infected puerperal case, a thing most practitioners do not know.

We attempt to have a student fairly well trained in anatomy, physiology and embryology—and on this basis we attempt, by didactic lectures, quizzes, manikin demonstrations, dispensary instruction, ward classes, clinics and a carefully supervised series of home deliveries to prepare him for the practice of obstetrics.

DR. W. W. CHIPMAN (closing): I see that Dr. Rowland is one of my teachers and Dr. Darrach has emphasized a very important cooperation. It is perfectly true that it is not good for a hospital to be alone and certainly not an obstetrical hospital. It should be closely associated with the other departments of a large hospital.

THE TEACHING OF MEDICINE*

J. C. MEAKINS

Professor of Medicine, McGill University, Montreal

Looking back over the history of the development of medical art and science during the past century, one cannot but be impressed by the close relationship between this and the emphasis which has been laid on the different methods of teaching. The growth has been gradual, passing through a number of stages which may be roughly divided into three parts; first, the development of the technic of physical examination, particularly in regard to the correlation of signs elicited by auscultation and percussion to the gross anatomic lesions. Secondly, comes the period with pathologic and bacteriologic thought dominated the outlook of medicine; and, finally, there is the period when biochemical and biophysical methods and outlook have tended to usurp the thrones of the first two. This last period has been accompanied by great emphasis being placed on laboratory methods which have entailed the development of much mechanical assistance.

This last development has tended to draw the attention of the students and of the practitioner away from the patient as a co-ordinated but functioning animal organism. One might almost say that he has been broken up into a variety of sections, and that the main portion of the investigation and analysis of the patient's condition has been done in laboratories, or other places, by someone other than the medical attendant. This has been one of the greatest dangers which the teaching of medicine has had to face during the past twenty years. It has tended to make the student non-self-reliant; to make him feel that the physician's part in the diagnosis and treatment of disease is of less importance than is that delegated to others who only view the patients from an electrocardiographic, roentgen ray, biochemical or biophysical point of view, and not as a human being.

All these forms of examination have their place in medicine, but they should rank subservient to an exhaustive general examination and all that this entails. Furthermore, they should be employed to contribute confirmation, but should not dominate the teaching of medicine. The tendency to allow them undue prominence is well illustrated by the procedure adopted by many hospital internes who will put in requisitions for a complete roentgen ray examination, including the chest and abdomen, an electrocardiograph report, a Wassermann reaction, blood chemistry, etc., before they have even taken the history or made a thorough physical examination which should include, of course, the examination of the urine, stools, blood, stomach contents, if required, and all other simple laboratory meth-

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ods which they are perfectly competent to undertake. One must face this tendency to "pass the buck,"—to use a slang expression,—when the teaching of medicine is under discussion.

The teaching of this subject should have a reasonable coordination, and, as far as possible, should be made to fit into the general scheme of the medical curriculum; the influence of one department should not be allowed to dominate the teaching of others. A certain amount of overlapping is unavoidable; but this may be allowed if it contributes to the greater good of the teaching of the whole subject.

It has been held by many that the student should be initiated into clinical medicine and surgery as early as possible in his medical career. There is much to be said in favor of this contention; but, there is considerable dubiety as to when this should most logically be initiated, as there is on the one side the important correlation of medicine to pathology, and, on the other, to physiology and biochemistry. It is difficult to teach medicine before the student has had at least his introductory course in general pathology, and it would not seem reasonable to discuss functional abnormalities before the student has had an opportunity of mastering the normal regulation of the body, whether it be physical or chemical. Furthermore, we have claimed in McGill that it is not the function of the physiologist or of the biochemist to teach so-called pathological physiology or pathological biochemistry. These subjects essentially fall within the realm of clinical medicine; in fact they are medicine,—and the staff of a department of medicine, at the present day, which cannot undertake this teaching if not equipped properly.

A similar contention is held by the best teachers in surgery, that the teaching of surgical anatomy is not the function of the anatomist but of the surgical teacher himself. It would, therefore, seem logical that as soon as the physiologist and the biochemist have finished, or are close to the completion of, their course, medicine should then take over the student and carry on the teaching of these subjects insofar as they apply to diseases in the human body.

This we have found by experience to be accomplished best by starting medicine immediately after the courses in normal anatomy, physiology and biochemistry have been completed. I feel that it is essential that the abnormal aspects of these subjects, as far as possible,—and this I believe to be almost completely possible,—should be demonstrated on the human subject. For instance, the comparison of demonstrating auricular fibrillation in an animal as compared to a human being should give rise to no difference of opinion that the latter is by far the more preferable manner. Similarly, the demonstration of dyspnoea or cyanosis, the occurrence of pain and its distribution, the demonstration of the different forms of jaundice, the results of disturbances of carbohydrate and fat metabolism, hyperthyroidism, hypothyroidism, and innumerable other important

physiological disturbances, are well and logically shown in the human subject.

A systematic and exhaustive course of this kind I consider to be the best introduction to medicine. The student comes fresh from his biological subjects. If, then, the method of production and the significance of the signs and symptoms of disease are systematically discussed and estimated as they qualitatively and quantitatively disturb the human organism, we are dealing with matters which the students can understand. It appeals to him in logical sequence, and he then may obtain an intelligent perspective of the main guide-posts which are going to help him in his future career, or what one might call the technic of finding his way about in medicine.

We have found this to be best taught by a series of lectures, numbering 60, each one of which is followed by a clinical demonstration of cases to illustrate the subject of the lecture just preceding. Here, then, we have a close coordination between the theoretical and the experimental aspects of the subject. It is surprising how much can be done to bring about this coordination with a little ingenuity and forethought. The student is not taught disease so much as he is taught disease processes, how they occur in the living body and what is the significance of them in themselves and in their manifestations.

Coincident with this he is introduced into the technic of physical examination. He is instructed in the methods of inspection, palpation, percussion and auscultation, the physical phenomena underlying their normal production and the anatomical variations which bring about their modification. He should not be encouraged to remember that râles mean bronchitis, or that a cardiac murmur means an endocarditis; but, rather, that the general pathologic changes in the bronchi, whether swelling or constriction or exudate, give a certain type of râle because of certain mechanical conditions which should physically produce such a sound. Also, the presence of a murmur in the cardiac cycle should be demonstrated only insofar as it may indicate a flaw in the valvular mechanism.

It has always appeared to us to be useless to emphasize, at this stage, the possible presence of endocarditis when the student probably has not had sufficient instruction in pathology for him to comprehend the full significance of such a pathological lesion, even if it be present. Were we to adopt this attitude of emphasizing pathological changes it would be better were medicine to undertake the teaching of pathology and, by the same token, it is well at this point to emphasize the danger of clinical medicine and pathological anatomy becoming too far divorced from each other, not only in teaching but also in practice.

The demonstration and practice of physical examination should be carried out on the human subject. Further, it is important that

this should be done in small groups and at frequent intervals so that repetition and sequence should be carried on. One of the difficulties, however, of group teaching, unless one teacher does it all, which leads to monotony and lack of enthusiasm, is the chance that a large number of teachers may not always agree on certain minutiae. In order that this may be overcome, it is well that a weekly survey or review of the technic of physical examination should be undertaken. In this review there should be a general discussion and emphasis of the known points. In those matters on which there is a reasonable difference of opinion, those opinions should be laid before the students; the evidence pro and con being given for each and the whole subject thrown into a proper perspective. In this way there is removed the confusion of mind which the student often has from hearing different teachers giving divergent opinions on matters which are usually of small importance. For how can the student differentiate between these apparently erudite but unimportant matters and those of the utmost value unless he be told?

In addition to the methods of physical examination outlined above, the students should have practical instruction in the technic of the examination of the nervous system of children, and also the methods of approach to psychiatric cases, particularly insofar as the earlier and milder manifestations are concerned. At this point it is well to correlate abnormal psychology and psychiatry in order that a broad outlook may be brought to bear on cases in the wards,—in other words, to emphasize the mental and spiritual as well as the physical approach to disease. During the latter half of this course in physical examination (which lasts three terms), more and more attention should be paid to associating signs and symptoms with simple pathological entities, and further, during this period the student's first introduction into personal case reporting should be commenced.

Clinical Microscopy.—During the seventh and eighth terms, the student is required to attend a course in clinical microscopy which occupies forty laboratory periods of two hours each. In this course he is taken in a practical and systematic manner through the microscopic examination of the urine, blood, feces, exudates, transudates, spinal fluid, etc., in their normal as well as in their pathological aspects. In addition, particular attention is paid to the recognition of pathogenic parasites which may be found in the body fluids or tissues. During a portion of the time given to the study of parasites, a short course of lectures is given on parasitic diseases. Then the student receives his first insight into the importance of parasites and bacteria, in the production of disease. It is felt that we can best employ his knowledge of biology in this manner and at the same time impress on him the great importance of parasitic and preventable diseases in the life history of man.

It is our endeavor during this period of the student's course to emphasize the why and the wherefore in the production of signs and symptoms and their significance. It should be our objective to induce, in fact compel, the student to think for himself and to reason with a scientific background.

Clinical Medicine.—Having accomplished this course satisfactorily, it is felt that he is now in a position to undertake the study of disease entities and to master the nosography of medicine. This teaching we accomplish by the following methods: (1) a course of 60 lectures; (2) bedside clinics; (3) case reporting and individual work in the wards; (4) clinical lectures on special subjects to large classes.

There has been much debate regarding the value of so-called didactic lectures in the teaching of medicine. To my mind, the only real objection to such a course is that it is so often given by the lecturer merely as a repetition of what may be obtained in any good textbook. This should not be so. The teacher should be able to instil into his discourse his own individuality as a teacher, to throw the subject into high lights, emphasize that which is important, relegate to a proper place those points of unimportance, and all in all to bring before the student's mind, as in a panorama, the whole field of medicine. These lectures, of course, should be supplemented by reading on the part of the student, and it is here, I feel, that we have one of the greatest problems of the present day in education.

I have been greatly struck by the difference in the mental attitude toward learning of those students who attended the Scottish universities and those who attend the universities of this country. I can only give expression to this comparison by labelling the American student as having, as a rule, a "newspaper mind," one that has been ruined as far as acquiring knowledge in critical reading is concerned by devoting all his leisure period to the perusal of the daily press with its catchy headlines, and its often ungrammatical and poorly written articles. He unconsciously develops a state of mind which is lazy in the acquisition of knowledge, which is uncritical of what it reads, and, after all, comes to the opinion that reading is not to be trusted or is not a serious occupation anyhow. The Scottish students, on the other hand, to whom newspapers are more or less of a luxury being very small in size and very expensive, even so, still have retained that love of reading of good English, of carefully reasoned debate. To them an opinion is an opinion, and must be based on some reasonable show of argument rather than on a mere blind statement of events for which no logical argument is forthcoming.

There seems also to be another point of view between these two classes of students which manifests itself mostly in the final years of the course; probably, because at this time they are beginning to

acquire what seems to them to be the "tools of their trade." The attitude of so many of the students of North America is that they have paid for these tools and they wish to have them delivered to them as though they were hammer or saw. The attitude of the Scottish student, on the other hand, is that he pays for the privilege of going to the university, that the university gives him more than he can ever repay, and that his people consider a medical education as a luxury and as the foundation of the career of a gentleman and scholar, and that the main object is not so much to make an extravagant living in the future as to hold a position high in the thought of his neighbors and his patients. Something must be done to induce the student to read, work and reason for himself.

Little need be said about the character of bedside clinics; they are the same the world over, more didactic in some places than in others, all depending on the attitude and capacity of the teacher. A true bedside clinic should strictly follow the socratic method of teaching. The student who is reporting the case should be prepared to answer all questions, whether asked by his teacher or by his colleagues, and the success of his endeavours in the wards should be judged according to his written word and spoken answer. This presupposes a considerable amount of leisure time on the part of the student in order that he may devote himself to the taking of a careful history and making a careful examination. Some students work more slowly but more accurately than others, and all students cannot be treated in the same manner.

All the ordinary methods of examination should be required before any confirmation by the more elaborate methods of technic are consulted. He should learn to be as self-reliant as possible, to come to an accurate diagnosis without a roentgenogram or an electrocardiogram or the blood chemistry, or a basal metabolism estimation. When he has accomplished all that is possible without these, then such mental luxuries and short-cuts should be made available to him in order that he may make his own interpretations. We try never to forget when we are teaching students that we are teaching them to be self-reliant practitioners of medicine and not merely "sorting agents" for the specialists in the profession. A proper perspective between the physician and the specialist should always be maintained.

This period of a medical student's teaching is in many ways of crucial importance. He has his technic and is now being given an opportunity to employ it. But it is imperative that the technic, the faculty of reasoning and reasonable skepticism should be maintained; that a proper perspective should always be before his mind; that the idea of thoroughness and careful observation is as important in medicine as it is in chemistry or in physics; that there is not only a medical art but also a medical science; that many disease entities run a definite course, and that disease should be considered in its whole

life history and not only for today and tomorrow. Prognosis is the most important factor about which the patient wishes to know,—the diagnosis usually being to him of incidental interest.

The student having accomplished his first four years of medical study, we hope that he has arrived at a point of mental equipment where he can be left more or less to his own devices, to round off his mental edges, and devote himself to a quiet perusal and orientation of all that he has learned. Some students are capable of doing this on their own. These are the few,—at the most, probably 3 or 4 per cent. For the good students, this final year is a period of great mental stimulation. They can follow pursuits in which they have an interest and at the same time allow themselves to reflect on their general mental equipment and fill in the lacunae as they may discover them.

There has often been discussed the value of research among undergraduate students. Personally, I am strongly against it. It is the exceptional student who is mentally equipped to undertake research, and it is with the greatest rarity that one is found who can carry on his ordinary undergraduate career and profitably pursue research. It is much better to encourage such a student with a scholarship; to induce him to spend one extra year in college hoping that the time and the money spent will be "bread profitably cast upon the waters."

Before concluding this discussion, it is important to say one word about the teacher. The ideal teacher in medicine should be one with a sound critical experience in clinical medicine. He should know men and humanity. He should also be well grounded in pathology, physiology, pharmacology, biochemistry and,—if it is not asking too much—, have a working knowledge of biometrics, biophysics and biology; but, the greatest of all these is his knowledge of clinical medicine. You may say that it is difficult to obtain such. All discussion of the teaching of medicine is futile unless such teachers can be produced. It is useless to attempt to cut and polish a diamond without the knowledge and the tools.

THE TEACHING OF PHYSICAL DIAGNOSIS*

DUNCAN GRAHAM

Professor of Medicine, University of Toronto

To the teacher of clinical medicine the following questions naturally arise with reference to the teaching of physical diagnosis:

(1) Is the student graduating in medicine at the present time as skilled in the technic and application of methods of physical diagnosis as his predecessor was?

(2) How can the teaching of physical diagnosis be improved?

The answer to the first question is in the affirmative. In the attempt to obtain an answer to the second question, I wish to give a brief account of our experience at the University of Toronto in the teaching of this subject with the hope that from the discussion that follows suggestions may come for the improvement of the present course.

In our reorganization of the teaching of clinical medicine a few years ago, particular attention was given to the teaching of physical diagnosis. Those of you who have had experience in the teaching of clinical medicine, I think, will agree that physical diagnosis is one of the most important and, at the same time, one of the most difficult subjects to teach. Yet, how often does one see the responsibility for the instruction in this subject given over to junior members of the staff with little or no experience in teaching, while senior members with a much wider experience, both in teaching and in the art of physical diagnosis, give the instruction in other aspects of clinical medicine. Often, the instruction is carried out in a busy outpatient department rather than in the quiet, more leisurely atmosphere of the wards of the hospital. Too often physical diagnosis is treated as a subject apart from clinical medicine, and when the course of instruction is completed, the teacher makes little or no future reference to it in the consideration of other aspects of clinical medicine; and the student, having acquired a familiarity with the technic of physical diagnosis and a very limited skill in its application, does not take full advantage of his opportunities for the further training of his senses of seeing, feeling and hearing in the diagnosis and study of disease.

A knowledge of physics, anatomy, physiology and pathology is essential for the proper understanding of the application of methods of physical diagnosis and of the interpretation of physical findings under normal and abnormal conditions. Instruction in physical diagnosis provides an excellent opportunity for the clinical teacher to impress on the student in the beginning of his clinical studies the importance of the application of the fundamental sciences to the study of clinical phenomena. This presents the greatest problem

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that confronts the teacher of clinical medicine. As many of our teachers had a working knowledge of at least one of these sciences, and the majority had a considerable experience in teaching and in the art of physical diagnosis, meetings of the teachers were held to discuss:

(1) Problems in physics, anatomy, physiology and pathology bearing on the application of methods of physical diagnosis and on the interpretation of physical findings in the diagnosis of disease.

(2) The technic, value and limitations of methods of physical diagnosis.

(3) Methods of teaching.

From time to time the expert advice of our colleagues in other departments was solicited with reference to debatable points: such as, the physics of sound as related to percussion and auscultation; the physiology of respiration; etc. Following these discussions, the present plan of instruction in physical diagnosis was drawn up:

FIRST CLINICAL YEAR.—(1) Two lectures per week during the first clinical year, illustrated by lantern slides, charts and patients, the subject of the lecture to cover the work to be taken up by individual instructors with small groups of students at the bedside in the ward the following week. By means of the lecture considerable time is saved in the bedside clinic for practical work by the student which otherwise would be spent by the instructor in explaining the object of the examination, technic of methods, etc.

(2) Two two hour bedside clinics each week for small groups of students. The instructor reviews very briefly the subject of the clinic as discussed in detail in the preceding lecture; then allots to the student cases, both normal and abnormal, on which to practise the methods of physical diagnosis and compare the physical findings under normal and abnormal conditions. Throughout the course, the importance of accurate observation as a method of diagnosis is stressed and the student is required to give a written as well as an oral description of his findings.

In two trimesters the whole subject of physical diagnosis is covered. In the third trimester, lectures are given on clinical history-taking, followed by introductory lectures on the study of disease. In the bedside clinics, the student practises taking clinical histories of patients and making complete physical examinations. The instructor supervises the work, giving necessary help and criticism, discussing with the student the manner in which the information obtained from the clinical history and the physical examination can be used in the diagnosis of disease.

SECOND CLINICAL YEAR.—The student has three work hours a week in the wards of the hospital for practise in taking a clinical history and making a complete physical examination. At the same time the student is required to make a routine blood and urine ex-

amination on each patient examined. This provides an opportunity for him to apply the laboratory methods of diagnosis studied in the previous year in the courses of pathologic chemistry and clinical microscopy. Each of these work periods is followed by a bedside clinic in which the examination made by the student is discussed by the clinician, followed by a talk on the clinical aspects of the case and suggestions for treatment. The student is required to submit for the approval of his clinician reports of his examination of at least three cases.

THIRD CLINICAL YEAR.—In the final clinical year, the student devotes all his time for one trimester to the study of medicine. He is allotted cases in the wards, and two mornings a week must attend the outpatient department. New patients are allotted, in rotation, to the students in medicine. They are allowed an hour to take a history and to make a complete physical examination. This provides a real test of the student's skill in the physical examination of patients and clinical history-taking, in the interpretation of signs and symptoms, and in the collection of data on which to base a provisional diagnosis under conditions very similar to those that he will meet later in the general practice of medicine. On the completion of the examination, the clinician discusses with the student his diagnosis and his suggestions for the disposal and treatment of the case.

Four mornings a week bedside clinics are held in the wards, at which the student presents a report of his examination of cases under his charge. Following the discussion of the case, the student is given access to the hospital records for reports of special examinations, etc. At the end of his period of study on the wards in medicine, the student has complete records of a number of patients which he has had the opportunity of observing over a period of weeks and following the effects of treatment. In some instances, the patients have died and the student is able to compare his physical findings with the structural changes found at the autopsy.

SUMMARY

In the arrangement of the course, physical diagnosis is made an integral part of the three years undergraduate instruction in clinical medicine. The student is first taught the technic and application of methods of physical diagnosis, later he is given an opportunity of acquiring proficiency in making a physical examination on patients in the wards, with an adequate time for completing his examination. Still later, this practice work is done in the outpatient department, where the student must think and act quickly under conditions similar to those experienced in general practice after graduation in medicine. In the first part of the course, bedside clinics are preceded by a lecture covering the subject of the clinic, thereby reducing to a minimum the time spent by the clinician in explanations and

allowing a maximum of time for practical work by the student. The student plays an active, not a passive, part in the clinic.

The student is taught: (1) that the taking of a clinical history of the patient's illness and the application of methods of physical diagnosis for the detection of signs of disease constitutes the first step in the clinical investigation of all patients.

(2) That with the data obtained from this examination plus the routine examination of the urine, the immediate treatment of the patient and the necessity for further investigation of the nature of the patient's illness is determined.

(3) That there is no substitute for this initial examination in the investigation of the nature and cause of the patient's illness.

(4) That other aids in diagnosis may be employed and are often necessary but that they must be considered not as substituting for but as being supplementary to the older, well-established, methods of physical diagnosis and clinical history-taking.

(5) That the careful and complete physical examination of the patient is just as important, just as necessary, and the information gained thereby is just as great today as it was at the end of the last century.

(6) That he should approach the diagnosis of a patient's illness as a clinical problem requiring for its solution the same method of study as that used in the solving of a problem in one of the fundamental sciences.

In my opening remarks I ventured the opinion that the student graduating in medicine today is as skilled in the technic and application of methods of physical diagnosis as his predecessor at graduation thirty years ago. While I believe this to be true, I am not so certain that the skill in clinical diagnosis gained from experience after graduation is as great among graduates of today as among their predecessors of thirty years ago. The modern development of specialization in the general field of medicine and the establishment of diagnostic clinics in increasing numbers would appear to indicate that one physician can no longer make a reasonably accurate diagnosis of the ills of his patients but must submit them to examination by a group of physicians and employ special methods of diagnosis to accomplish this end. Whether or not the conclusion drawn from this observation is justified, specialization in the general field of medicine has encouraged a division of responsibility in diagnosis—roentgen ray, instrumental and laboratory—, has made the practising physician less dependent on the use of his senses of seeing, feeling and hearing in the diagnosis of disease. Under this influence, the family physician of today will become less proficient in the art of physical diagnosis and clinical history-taking than his predecessor of thirty years ago unless he acquires early in his career as a clinician proficiency in the technic of physical diagnosis and in the art of

clinical history-taking and fully realizes their fundamental importance in the diagnosis and study of disease.

THE TEACHING OF INTERNAL MEDICINE ALONG "PHYLOGENETIC" LINES*

CHARLES P. EMERSON

Dean, Indiana University School of Medicine

Please do not allow the word "phylogenetic" in the above title to mislead you, for this will not be a profound philosophical discussion of our medical curriculum, only a suggestion for its improvement, and suggestions surely are in order, granted that the curriculum is as unsatisfactory as numerous papers on our recent programs would indicate.

After several tentative attempts to improve our own course in internal medicine, we finally decided to apply to medical pedagogy that generalization of biology, useful in other fields also, that in embryology ontogenesis tends to run parallel with phylogenesis. That is, we have been attempting a course in internal medicine which, in truth, is a brief recapitulation of the historic development of this subject. Of course, the popular curriculum of today is exactly the reverse of this. Now, our students begin their study of internal medicine not merely in its present, but even in its hypothetical future states. Now, they enter the wards with mind teeming with the recent findings of biochemistry and special pathology, subjects in which lie the advancing edge of medicine, and with their imagination stimulated by those unfortunate illustrations, so very popular with pre-clinical teachers, of the possible "practical applications" which each recent laboratory discovery may have in medicine or surgery. Of course, much of these preclinical sciences, and especially their methods, are necessary to the student on the day he enters the wards, if he is to study well his cases, but surely most of the X Y Z of medicine should be held in reserve until after he shall have mastered the A B Cs of this subject.

With this in view, our medical students attend clinics in internal medicine from the beginning of their sophomore year, and at the same time begin also a course of 32 lectures in the history of medicine, lectures which deal, however, far more with the development of modern medical ideas than with the history, names and dates of historic characters. With the beginning of their second year (in their first year our students get only normal anatomy and normal physiology) begins also a course in gross pathology, and the regular course in bacteriology, followed, the second semester, by general

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pathology. All discussion of serology, however, is postponed till the last semester of the senior year, also much of biochemistry, while the demonstrations in special pathology are conducted, in large degree, according to the needs of the special clinical courses. During the past several years we have tentatively offered such a course; but more recently, we have carried it out in detail.

Following such a plan we can, of course, accept only a few hints from phylogenesis; to do so literally would be unnecessary and stupid; also, the records of history show mistakes as well as progress in the evolution of medicine. We would emphasize at this point that we shall discuss a course in internal medicine only; the surgeons and the specialists must study their own problems.

The curriculum now popular in American schools dates back to the nineties. It was imported from Germany by a group of American anatomists, physiologists, pathologists, and pharmacologists, splendid men, well trained in the fine German universities, who returned to this country with a grim determination to reorganize American medical education. There certainly was great need for their reform. Some tried merely to improve the condition in their schools as they found it then; one faculty advertised widely its plan to organize a medical school entirely along German lines. These men saved American medical education, and to them belongs all the credit for our present success.

It should at this point, however, be noted that very few clinical men assisted in that reorganization. The latter were, from the first, regarded with suspicion, or even were openly accused of exploiting the schools for their own professional gain. A better reason, however, why so few clinical men participated in this reorganization is that Germany at that time was not training real clinicians. Many very eminent men occupied the chairs of medicine in her universities but they were not internists; they were not clinicians; their reputation rested on their work in pathology, bacteriology or in a chemistry which was not always biochemistry. Indeed, history would seem to record but one eminent German clinician, Frierich, and his methods were not preserved even by his own students.

Clinical medicine has, during the past three centuries, reached its best development in Great Britain. After Hippocrates came Sydenham. Sydenham's influence reached Boerhaave in Holland, and Louis, Laennec and others in France, and then inspired Bright, Addison and Hodgkins in London, Stokes, Cheyne, Adams and Corrigan in Dublin, indirectly determined the character of the school in Edinburgh, then reached Canada, and later a few of the United States schools. Here, since the nineties, there have existed two antagonistic opinions; Sydenham versus Virchow. Those who followed Sydenham hold that clinical medicine is an independent subject, and those who were trained in the German universities, believe

that clinical medicine is merely the practical application of the pre-clinical sciences. At present, it is the latter group which is in power; at present, it is the preclinical men who appoint the clinicians, who direct their teaching, and who would pass final judgment on the products of their work.

But why did Germany pay so little attention to clinical medicine? A partial answer to this question may be found: first in the political and social conditions which then obtained in Germany owing to the Napoleonic wars, and the German lack of unity; and, second, in the subjective philosophy of that time, the systems of transcendental idealism and romanticism, the most striking example of which is Hegel's absolutism, and which in her medical schools was represented especially by "Naturphilosophie." One of the main dogmas of these various philosophies is often stated as follows: "In the laboratory of consciousness one may immediately discover truth; why, then, study the phenomena of the external world, which, at best, is but an imperfect attempt at the realization of this truth?"

Such was not a local nor a transitory point of view. It seems to have pervaded the German art and romantic literature of this period, and to have created in the universities a situation which the faculties openly lamented, especially since the new Vienna school of medicine then was in the ascendancy; France already was a famous medical center, and England was productive, but Germany had nothing to offer to the student seeking accurate instruction in internal medicine. Little wonder, then, that when, finally, the scientific ideas of Magendie, Bichat and others were adopted by Johannes Mueller and his students, it led to a development of the laboratory departments of the universities which was so rapid that it would be astonishing to one not acquainted with the phenomena of overcompensation.

It is quite unthinkable, however, that racial mental patterns, which had expressed themselves in Naturphilosophie, for example, should disappear at once, if at all. That pattern still was determining, only in a different guise; for, later, the "laboratory of consciousness" became the laboratories of the preclinical sciences, and "the external world" became the patient. This is indicated by such expressions as, "At the bedside one gropes darkly; in the laboratory one sees the truth clearly. Why then waste time on the patient?" Again, "Work in the laboratory, for clinical medicine is merely the practical application of laboratory findings, and always *folgt von selbst*." We might imagine one of them to say, were he here today, "The professor of physics of McGill University could easily run the heat and light plant of the City of Montreal did he so desire, since the machines he would use are only the practical application of his science, but why should he want to? By so doing he certainly would step down to a lower level." So, why should a professor of medicine treat patients?

The American mind, however, is not entirely Teuton, and America never had passed through a period of "Naturphilosophie," so when German medical education was transplanted to this soil, it, like many exotic plants, developed into strange forms, and among them, the "full time clinical professor," and our present unsatisfactory curriculum.

One who tries consistently to plan medical education along phylogenetic lines soon is confronted by many problems, some of which are rather disconcerting.

First, that the essential goal of successful internal medicine has always been selfsacrificing service. Sir William Osler greeted certain first year students thus: "If you have come here to study this profession because you believe it will be interesting and lucrative, please go home. If, on the other hand, you have come because you believe that in the practice of medicine you best can use your talents in the service of your fellowmen, then we welcome you." Honor, reputation and wealth may fall to our graduates; we trust they will in large degree; but if in his daily work a physician has these in mind, they will so direct and control his zeal that the quality of his work will be injured. Is that the message which those who now teach internal medicine in hospital wards seek to impart to their students?

Second, that the ability to practice the best of internal medicine is a gift, similar to the gift of music or of art; a gift which cannot be created in the student, although one which can be developed highly. Multiply all the art schools of Quebec, and it is doubtful if you will discover more artists than you now know. More persons, however, undoubtedly would paint. Multiply the number of music conservatories of this Province, and I doubt much if you will discover any more musicians than those you now know, although undoubtedly more would try to sing. Multiply your medical schools and increase the size of your classes, and I doubt that the number of real clinicians would be increased, although, undoubtedly, more would attempt to practice.

Who, then, is to decide which of our students have this gift in sufficient degree to justify their choice of this profession? Certainly not the students themselves, no matter how earnestly they may desire to become surgeons or consultants. Their judgment in this matter is no more to be trusted than is that of the boy who yearns to sing. Certainly not the public, for the laity never has been able to evaluate the essential talent of an enthusiastic self-confident surgeon or internist. Certainly not many preclinical men, since the fact that they are preclinical men may be evidence that they have not this gift in question. The decision must rest, just as it does in the schools of art and music, with those who, according to the judgment of their

professional brothers, have proven themselves skilled internists. It is these men who should have the decisive voice in the choice of medical students and in the formation of the curriculum.

Third, that one of the most important lessons from the history of medicine, Germans of the past generation to the contrary, is that internal medicine is not involute in the preclinical sciences in the sense that the oak is involute in the acorn. The preclinical sciences are not fundamental to internal medicine, they are not basic to internal medicine, they are not even introductory to internal medicine. True, they are the means by which internal medicine has advanced; they are the tools by means of which internal medicine solves most of its problems; they are invaluable in that they suggest to internal medicine certain possibilities worth while to investigate for man. Indeed, the progress of the history of bedside medicine has, in largest degree, depended on our ability to appropriate the ideas of the preclinical laboratories. Nevertheless, experimental work on the laboratory animal proves nothing for man; it only suggests what for him may be true.

How true these suggestions are for man, we determine before we use them. That is, internal medicine must plod forward on her own feet; she is not carried on the back of any preclinical science. These sciences cannot do her work for her. Contractors alone, with their steam winches, derricks, cables, etc., did not produce these beautiful buildings of McGill University. They may have been very necessary, and yet the ruins of Greece show that most beautiful buildings can be erected without their use. Phidias produced the most perfect marbles created by man, and yet he had none of the electric drills, reamers, or polishers of the modern worker in stone; Hippocrates and Sydenham had the aid of none of our preclinical sciences, and yet we praise them for the unusual excellence of their work in internal medicine, excellent as judged by the standards of today. Perhaps, they might have done better work if they had had our laboratories. Yes, perhaps, also, if they had had our automobiles.

The medicine of Hippocrates, like all art and applied science, is to be judged first according to the methods used and second according to the material worked on. It is the method of Hippocrates and Sydenham which we praise. They observed their cases objectively, and the deductions they made from what they saw were logical. That is all; yet the medicine of Hippocrates is like a tiny spring of pure water, crystal clear, and excellent in quality, although very limited in quantity. Our medicine, on the contrary, is more like the Mississippi River, vast, powerful, useful, but muddy; muddy, partly because we have purposely confused the means with the end; the tool with the creation. Of course, one should in his work use every tool which may be of use; we would be guilty did we not employ all the advances of medicine in the service of our patient; but our in-

ternal medicine is not the sum total of our tools, but depends more on the wisdom and vision with which we use them.

Hippocrates was also intellectually honest. He described forty-two cases so objectively that we now can visualize them clearly in terms of modern science, and yet frequently said frankly and truthfully he didn't know what was the matter with some of them. How often do we say that? And yet how often we don't know!

Unfortunately, we are not training our medical students to be objective. Quite the contrary, we are not trying to; we even are trying not to. We send them into the wards just as biased by the preclinical sciences as we can bias them, and the bias and prejudice of accurate preclinical science is just as truly an error as would be that of a false theology. True, not as serious an error, but, nevertheless, just as truly an error. Our medical students are asked to see the patient through the lenses of the preclinical subjects. They frequently speak of a case assigned them as "good" because it illustrates well that which they have already learned; another, even more remarkable case, they describe as "poor" because it does not confirm just what the professors of biochemistry or pathology had said of the disease.

Right there is our difficulty. The preclinical men who believe the preclinical sciences to be introductory, or fundamental, or basic, try to do for the student the very thing which we internists say they should not do. We want the student to approach each patient with an unprejudiced mind, and then to use all the means at his disposal to find out just what the trouble with that patient is.

One observation in pedagogy will illustrate this. Our former course in bacteriology, which came during the second year, ended with a course in serology, during which various serum tests, including the Wassermann, were described. These students later always entered the wards believing that this test decided whether or not a patient had syphilis. We protested to our professor of serology who promised that during the following year he would emphasize emphatically that the Wassermann test was not final; but again, the next year, the students, when asked if a given patient had had syphilis, replied by quoting the Wassermann report.

This, we believe, is a rule; a test learned before the student knows the clinical problem of which it is the test will have created in his mind a definite bias which will make objective observation difficult. It takes him some time to grant that although a patient has had lues the illness which now brings him to the hospital may be some quite different disease.

The fourth lesson from the phylogenesis of medicine is that internal medicine is an individual matter. The internist may be assisted by his associates, but they cannot assume his responsibilities for him.

A history well taken is a diagnosis 50 per cent made. The clinician himself should take this history since he cannot afford to miss the valuable hints and suggestions afforded, e. g., by a redder flush on the patient's face, or by a slight hesitation in answering some question.

A careful physical diagnosis furnishes about 40 per cent of a correct diagnosis, since only in this way can the clinician personally acquaint himself with the individual whose problem he is studying. He cannot afford to let another make it for him. All the laboratory work, including roentgenology, clinical chemistry, serology, bacteriology, etc., added together may add 10 per cent. in the diagnosis. As a matter of fact, much more dependence than this usually is placed in laboratory reports, and, too often, with serious mistakes as the result.

The great, the inestimable value which the sciences have had in medicine is that its progress has depended on them. They teach us what the diseases are, what our physical signs and symptoms mean. They have furnished the content of medicine. They help, however, relatively much less in the examination and care of the individual patient. This was well illustrated by the electrocardiograph. Perhaps no one instrument has so radically rewritten a chapter of medicine as did this machine rewrite our books on diseases of the heart. Nevertheless, it is very seldom used clinically, and least by those best trained in its use. Thanks to it, they know what certain tactile and auditory sensations really mean.

The great error in modern medicine is that our students expect tests to be deciding witnesses; that the roentgenograms will decide, whether or not the patient has tuberculosis of the lungs, or a cancer of the stomach; that a sputum report positive for *Bacillus tuberculosis* settles the diagnosis of tuberculosis of the lungs; that a 4 plus Wassermann reaction proves that the patient has had lues. Would that this might be possible! How much time it actually would save us. But it is not.

The laboratory reports have no value more ultimate than that of the clinical interpretation they receive. They must be elevated, not in terms of the laboratory, but in those of the individual case then being studied. They are not final; it is the application we make of them to the case in question which is final; and the more of laboratory tests which can be made in any individual case, not the easier our task but the harder, since each adds the responsibilities of evaluation and application.

The fifth lesson that the phylogenesis of medicine suggests is that we should make due allowances for our own mental habits and attitudes which must have developed, in part at least, during the one thousand years through which our ancestors lived during the Dark and Middle Ages. Mental patterns certainly must have re-

sulted from the misery, famine, pestilence, fears, superstitions and prejudice of that long period. To these we must owe some of the bias, some of the prejudices, some of the mental inertia, some of the fondness for speculation, freedom from which no American can boast.

Sixth, experience has taught that the preclinical sciences do not afford good mental discipline. In practice, the premedical sciences do, but not the preclinical. In them, as taught in medical schools, is very little rigid logic. True, they (e.g. biochemistry) might be taught as truly scientific as the premedical sciences (e.g. organic chemistry), but what medical school teaches them in that way or wants to teach them that way, or would permit that they be taught that way? Few, if any, since they are used to afford a possible (and often untrue) "basis" for clinical medicine. In them is rather the advancing edge of medicine and the speculative interpretation of many of the still questionable clinical phenomena. Only the unusual preclinical teacher will resist the temptation to illustrate his subject by "possible practical clinical applications." For that reason much of biochemistry, serology, etc., and experimental pathology should come during the last semester of the senior year, when they may afford explanations of clinical phenomena of which the student already has some definite idea. Why should the explanation precede the question? Some day, in the interest of mental discipline, we hope to replace about one-half of our preclinical courses with logic, English (with special reference to spelling), history, philosophy and mathematics. Possibly at some future meeting we will report to you our results.

The seventh lesson from the phylogenesis of medicine is that medicine is a rapidly flowing stream bringing us suddenly face to face with new problems, and some of them unexpectedly strange. The rapidity of flow of this stream in largest degree depends on the success of our preclinical sciences, but our progress toward the future depends on the successful completion of the problems of the present. Formerly, we dealt with symptoms: headaches, neuralgias, jaundice, malaise, etc.; but now we cope with the diseases which cause them. Today, the student should briefly repeat that part of medicine's journey by learning how to write a good case history. The stream next carried us away from the consideration of advanced cases to that of cases in their incipency; from tuberculosis of the third stage to cases whose sputum is still negative and whose roentgenograms still are in dispute; from the study of the insane parietic to the one still efficient in business; from the study of a case of exophthalmic goiter to the care of one as yet without goiter, without bulging eyes, and with no tremor. Our students repeat this stage of medicine's journey as they practice physical diagnosis and later as they use the various laboratory tests.

Then, the stream of progress carried us beyond the tyranny of such diseases as typhoid fever, malaria, yellow fever and other acute communicable diseases, and our students repeat this stage of medicine's journey in the courses in public health and preventive medicine.

Next, the student travels with medicine as we now face changes in our conception of disease. We now speak with less confidence of the "causes" of disease. Man no longer is regarded as a soldier on the field of battle who, if he gets in the path of a germ, gets hurt. We no longer teach that *Bacillus tuberculosis* is the cause of tuberculosis. It is essential to the production of this disease, but the susceptibility of the patient is even more important. Symptoms no longer are considered as evidences of the action of the diseases themselves but rather of the action of defensive mechanisms by means of which the body protects itself against infection.

Pathology now is not a pathology of lesion but one of action, and the student finds himself less and less a morphologist and more and more a behaviourist. He studies the behaviour of the tissues, by which we mean their susceptibility to infection, their tendency to malignant growth, etc. He studies the behaviour of functions and names these "functional disturbances," dysfunctions, psychoses and neuroses. Suddenly, he find himself studying the behaviours of man, and, willingly or unwillingly, finds that many problems of crime and of antisocial attitudes are just as much our medical problems as are tuberculosis, arthritis, or cancer. Indeed, now he sees the need of training in clinical sociology and in pathological psychology, and is interested to study these not because they "contain" medicine but because they are tools just as necessary in order to meet medical problems as are anatomy, bacteriology or pathology. I hope, however, that no curriculum committee in the future will assign these subjects to the first two years and refer to them as "preclinical."

And, last, the medicine of each age always tends to be a reflection of the culture of that period. Given one, the culture or the medicine, and you can with some degree of accuracy postulate the other. The same social forces which produced a Phidias and a Plato produced an Hippocrates; the spirit of Galen was that of the Roman Empire; the medicine and the culture of the Dark and Middle Ages both were ignorant superstitions. Shakespeare, Milton, Harvey and Sydenham all go together; while modern surgery is part and parcel of our culture famous for its inventions.

While our students must be part of their age, yet they need not emphasize its worst features, but can emphasize its best. Our duty, therefore, is to point out to them its evil and its good. For illustration, success in America is too largely measured in terms of income, and in the case of medicine this is deadening. Second, in all lines of activity, the American is prejudiced in favor of organiza-

tion and mass production. Of course, organization in medicine can relieve us of many details of our work, but it cannot relieve us of one single responsibility. The American who approves of the factory which can produce thousands of cars a day, approves also of the clinic which can handle one hundred new patients each day, and of the surgeon, who with the aid of several teams of assistants, can perform twenty operations in a day. The process seems to fascinate them. One notes, however, that what they admire is the dexterity of the surgeon, his operative skill; they seldom ask if each patient operated on that morning required just exactly the operation which was performed on him.

Third, the American is prejudiced in favor of mechanical methods. To him the roentgen-ray machine is as much an improvement over physical diagnosis for deciding, e.g., the condition of the lung or stomach, as rapid transit is over walking. True, machines help, but they no more give us the diagnosis of a given case than rapid transit itself answers the reason why we took the journey. Fourth, the American wants a dead sure test, one which is 100 per cent accurate. He loses interest if one is only suggestive; he wants it final. There are none such.

It is of interest, however, that the practical American manufacturer, for illustration, believes in testing the efficiency of each key man in his departments. Would he approve of appointing as head of a clinical department a man whose one recommendation was work in a chemical laboratory?

In conclusion, our suggestion is that we be more careful to select for our medical classes those students who, we believe, have the gift of medicine, have heard the call, and have the spirit of self-sacrificing service; that we initiate them at once into the problems of internal medicine, and then teach them the various methods afforded by the preclinical sciences of solving these problems; and, finally, that we talk less about the medical curriculum and set our students a much better example by practicing better what we preach.

DISCUSSION

On Papers of Drs. Meakins, Graham and Emerson

DR. CAMPBELL HOWARD, McGill University, Faculty of Medicine: Dr. Emerson's paper reminded me of the fact that the temperance crank is always a reformed drunkard. I remember very well that shortly after Dr. Emerson's return from Germany, when he was in charge of laboratory subjects in Johns Hopkins Hospital, that that was by no means his point of view. I think that a word of warning to him that he is going a little too far in his reformation is not out of place.

Dr. Meakins has very well put before you the British point of view and the one which is in vogue now in McGill University. The very good reasons for the various types of teaching are well presented. I have nothing to add,

except, possibly, to disagree with one point on which we often disagree, namely, the importance of a didactic lecture, which had been largely dropped from the curricula of many medical schools with which I have been associated in the past. I still believe that a didactic lecture is not a useful method of teaching. Possibly, suffering as I did in my undergraduate years at McGill from the didactic lecture, as described by Dr. Meakins, I have always had a distinct distaste for it. It was, possibly, the attitude of mind of the student of that day. I do not think that the student has changed much in his mental attitude.

I feel that the substitute for the didactic lecture is the lecture—the quiz. As you know, a student still must be driven. The majority of medical students with whom I come in contact have to be driven. Some read of their own accord, but the average undergraduate student has to be driven and the method which I tried to introduce here and carried out for several years, was to assign a given number of cases to the students, before the lecture quiz, meet them next day in person and ask the odd man to give me his reading of the night before. Rarely was he allowed to continue as long as he showed he had opened his book and made even a casual study of it. I was satisfied that he was reading, but I was not going to continue a lecture on that text. I usually branched off and asked a leading question—such as, the etiology of the disease in more detail. Then we were in the habit of assigning topics for reading, and asking the members of the class to come next day with an abstract of such-and-such important papers dealing with subjects on which we had touched lightly. In that way we got the men reading outside of their textbooks, becoming more or less familiar with the current literature and some of the old classical literature of our fathers.

I have always found the student interested in this. He was not interested in the actual quiz part. He took it as a matter of fact, but the results of that method of teaching were always gratifying to me because many of my students in Iowa, and in McGill, have said, "Dr. Howard, I want you to know that one thing you taught me is where to find things in Osler." My standard reply is, "Then I have taught you all that I know myself, because I still know where to find things in my Osler."

The second point I wanted to mention is one which Dr. Meakins did not stress, and that is a custom of ward therapeutics. The first time I met that class was in Baltimore, when for various reasons it was found necessary for Dr. McRae to meet the clinical clerks in their final year and teach them therapeutics of typhoid fever, pneumonia and nephritis by the bedside so that they could be ready to discuss the reasons for the various methods of treatment in force. They usually benefited greatly by this. I think that is an excellent method of teaching that might be imitated elsewhere. It helps the students greatly and we find that it makes them immediately useful internes when they come to their interne year.

Dr. Duncan Graham's paper covered the whole subject. As far as I am concerned, it leaves no room for discussion. The method of teaching physical diagnosis has improved largely in the past ten years, following closely with the pathology and physiology lectures, and the application of a few clinical methods by the introduction of the patient. It seems to me to be the ideal method of teaching physical diagnosis.

A STUDY OF PRESENT TENDENCIES IN MEDICAL PRACTICE

H. G. WEISKOTTEN

Dean, Syracuse University College of Medicine

At the 1926 meeting of the Association of American Medical Colleges I presented some data in regard to the graduates of fifty-two different medical schools for the years 1915 and 1920. This was based upon questionnaires returned from 66 per cent of the graduates.¹

In an endeavor to make the results more reliable, "follow up" questionnaires have been sent to the 34 per cent who did not reply last year. In addition, questionnaires were sent to the graduates of the same years of five colleges not included in the previous study.

Replies were received from 574 who did not answer the questionnaires sent them in 1926, making a total of 79.1 per cent returns for the colleges reported on last year.

The colleges included in the study this year but not included last year are—Cornell, Illinois, Meharry, Tennessee and Vanderbilt.

A total of 526 questionnaires were sent out to the graduates of these colleges for the years 1915 and 1920. Of these 302, or 57.4 per cent, were filled out and returned. The response from the graduates of Meharry Medical College was disappointing. Leaving these out of consideration, I received 62.3 per cent replies from the questionnaires sent out for the first time this year. The form of the questionnaire used was published in the previous report.

My purpose is to report the results of a study of all of the questionnaires returned both this year and last year. This study, made at the suggestion of Dr. Fred C. Zapffe, secretary of the Association of American Medical Colleges, was carried on in an endeavor to assemble some data as to the trend of medical practice. It is especially valuable to us in connection with discussions on medical education, to know what is likely to become of our students after graduation.

The names and addresses of the graduates of the years 1915 and 1920 were secured from each medical college. Letters and questionnaires were sent to the graduates together with stamped, addressed envelopes in which to return the filled in questionnaires.

Questionnaires were sent out to a total of 4,925 graduates. Of these, 3,781, or 76.7 per cent, filled out and returned them. Many gave their own views in regard to the practice of medicine and nearly all showed a real interest in the study either by asking questions or by the apparent care with which they filled out the questionnaires. I mention this because it is generally recognized by statisticians that information thus given in a spirit of cooperation is very reliable.

1. The BULLETIN, April, 1927.

Table 1.—Number and Per Cent of Questionnaires Returned by Medical College Graduates, According to College, 1915 and 1920.

Medical College	Total Questionnaires			1915 Questionnaires			1920 Questionnaires		
	Sent out	Re- turned	Per cent Re- turned	Sent out	Re- turned	Per cent Re- turned	Sent out	Re- turned	Per cent Re- turned
All colleges.....	4,925	3,781	76.7	2,401	1,834	76.4	2,524	1,947	77.1
Albany.....	66	54	81.8	46	38	82.6	20	16	80.0
Arkansas.....	17	11	64.7	17	11	64.7	..	..	..
Baylor.....	46	33	71.7	16	10	62.5	30	23	76.6
Bellevue.....	196	143	72.9	87	71	81.6	109	72	65.8
Boston.....	30	22	73.3	19	14	73.7	11	8	72.7
Buffalo.....	110	84	76.3	53	42	79.2	57	42	73.6
California.....	32	25	78.1	11	10	90.9	21	15	71.4
Colorado.....	26	22	84.6	8	7	87.5	18	15	83.3
Columbia.....	170	138	81.1	80	62	77.5	90	76	84.4
Cornell.....	71	39	54.9	20	10	50.0	51	29	56.8
Creighton.....	59	50	84.7	36	30	83.3	23	20	86.9
Detroit.....	78	57	73.0	39	28	71.7	39	29	74.3
Emory.....	177	122	68.9	146	98	67.1	31	24	77.4
George Washington.....	45	34	75.5	23	18	78.3	22	16	72.7
Georgetown.....	42	30	71.4	27	21	77.7	15	9	60.0
Georgia.....	26	21	80.7	11	8	72.7	15	13	86.6
Hahnemann.....	56	40	71.4	20	14	70.0	36	26	72.2
Harvard.....	173	138	79.7	80	64	80.0	93	74	79.5
Howard.....	48	24	50.0	20	11	55.0	28	13	46.4
Illinois.....	168	97	57.7	88	50	56.8	80	47	58.7
Indiana.....	67	57	85.0	27	26	96.3	40	31	77.5
Iowa.....	75	65	86.6	22	20	90.9	53	45	84.9
Jefferson.....	293	235	80.2	131	105	80.1	162	130	80.2
Johns Hopkins.....	181	157	86.7	83	73	87.9	98	84	85.7
Kansas.....	31	24	77.4	10	8	80.0	21	16	76.2
Long Island.....	146	107	73.2	70	52	74.1	76	55	72.3
Louisville.....	75	55	73.3	49	39	79.6	26	16	61.5
Marquette.....	37	31	83.8	25	20	80.0	12	11	91.6
Maryland.....	119	92	77.3	66	49	74.2	53	43	81.1
Medical College of Virginia.....	110	79	71.8	88	63	71.5	22	16	72.7
Medical Evangelists.....	28	21	75.0	12	9	75.0	16	12	75.0
Meharry.....	99	35	35.3	65	25	38.4	34	10	29.4
Michigan.....	115	93	80.8	42	35	83.3	73	58	79.4
Minnesota.....	96	88	91.6	34	30	88.2	62	58	93.5
Nebraska.....	40	44	89.8	10	7	70.0	39	37	94.9
Northwestern.....	108	81	75.0	42	29	69.0	66	52	78.7
Ohio State.....	64	55	85.9	42	35	83.3	22	20	90.9
Oklahoma.....	33	24	72.7	18	13	72.2	15	11	73.3
Oregon.....	28	20	71.4	16	10	62.5	12	10	83.3
Pennsylvania.....	183	149	81.4	54	46	85.1	129	103	79.8
Pittsburgh.....	43	40	93.0	10	9	90.0	33	31	93.9
Rush.....	180	158	87.8	84	73	86.9	105	85	80.9
St. Louis.....	99	82	82.8	39	33	84.6	60	49	81.6
South Carolina.....	39	31	79.5	24	19	79.2	15	12	80.0
Stanford.....	35	30	85.7	16	14	87.5	19	16	84.2
Syracuse.....	47	46	97.9	12	12	100.0	35	34	97.1
Tennessee.....	75	54	72.0	60	43	71.6	15	11	73.3
Texas.....	98	76	77.5	33	29	87.8	65	47	72.3
Tufts.....	140	88	62.8	61	38	62.2	79	50	63.2
Tulane.....	152	117	76.9	71	59	83.1	81	58	71.6
Vanderbilt.....	113	77	68.1	86	59	68.6	27	18	66.2
Vermont.....	54	53	98.1	33	32	97.0	21	21	100.0
Virginia, University of.....	52	46	88.4	25	20	80.0	27	26	96.2
Washington.....	71	65	91.5	29	28	96.5	42	37	88.1
Western Reserve.....	84	74	88.0	32	30	93.7	52	44	84.6
Women's Medical College.....	36	23	63.9	26	18	69.2	10	7	70.0
Yale.....	25	23	92.0	7	7	100.0	18	16	88.8

A study of the returns from the 574 who filled in and returned the second or "follow up" questionnaires gives results which differ in no way from the results of a study of the returns from those who answered the first questionnaire sent them. This indicates that the data presented are very dependable and representative, and that there was not a tendency for certain types of graduates to fill out and return the questionnaire in larger numbers than others.

Table 1 shows by colleges the number of questionnaires sent out and the number and per cent returned. As shown in the table, the questionnaires returned show a relatively uniform distribution as regards the colleges represented. The graduates of Howard and Meharry showed the smallest per cent of replies. The distribution between the 1915 and 1920 graduates is also such as to warrant a comparative study.

SEX.—As shown in Table 2, 3 per cent of the 1915 graduates and 3.7 of the 1920 graduates were women. Certain separate tabulations of the women graduates tended to show no way in which they, as a group, materially affected the results of the study. The number of women graduates included was too small to warrant

Table 2.—Medical College Graduates, According to Sex, 1915 and 1920.

Sex	1915 Graduates		1920 Graduates	
	Number	Per cent distribution	Number	Per cent distribution
Both sexes.....	1,834	100.0	1,947	100.0
Men.....	1,779	97.0	1,875	96.3
Women.....	55	3.0	72	3.7

any conclusions as to them as a group. They have been included in all of the tabulations, but will not be considered separately.

AGE.—The tabulation of the graduates according to five year periods as shown in Table 3 shows that a somewhat smaller per cent

Table 3.—Medical College Graduates, According to Age Period, 1915 and 1920.

Age Period	1915 Graduates		1920 Graduates	
	Number	Per cent distribution	Number	Per cent distribution
All ages.....	1,834	100.0	1,947	100.0
25 to 29 years.....	....	....	346	17.7
30 to 34 years.....	420	22.9	1,288	66.1
35 to 39 years.....	1,117	60.9	252	12.9
40 to 44 years.....	212	11.5	37	1.9
45 to 49 years.....	58	3.1	7	0.4
50 years and over.....	14	0.8	3	0.2
Age not reported.....	13	0.8	14	0.8

of the 1920 graduates are between 25 and 29 years of age than that shown for the corresponding age period of the 1915 graduates.

DISTRIBUTION.—Table 4 gives the distribution of the graduates according to the community in which they are practicing. This tabulation was not carried out for the smaller communities because it was felt that probably more reliable information on this point might be secured elsewhere.

Table 4.—Medical College Graduates, According to Community in Which They are Practicing, 1915 and 1920.

Community	Graduates of both years		1915 Graduates		1920 Graduates	
	Number	Per cent Distribution	Number	Per cent Distribution	Number	Per cent Distribution
All communities.....	3,781	100.0	1,834	100.0	1,947	100.0
Cities of 500,000 population and over.....	1,132	29.9	516	28.1	616	31.6
Cities of 100,000 to 500,000 population.....	699	18.5	347	18.9	352	18.1
Balance of states.....	1,883	49.8	940	51.2	943	48.4
Foreign countries.....	67	1.8	31	1.8	36	1.9

In Table 5 is given the distribution of the population of the United States according to the 1920 census. Comparison of the two tables suggests a marked discrepancy between the distribution of the physicians of these years and the general population. However, there are two points to be kept in mind in this comparison of these two tables: first, relatively wide areas surrounding the larger communities are cared for by the physicians of these communities, and, second, there is, apparently, a definite movement of the population from the smaller to the larger communities. Table 6 shows the distribution of the graduates according to the college from which they graduated.

Table 5.—Distribution of Population of Continental United States in 1920.

	Number	Per cent distribution
All communities.....	105,710,620	100.0
Cities of 500,000 population and over.....	17,369,301	16.4
Cities of 100,000 to 500,000 population.....	10,060,025	9.5
Balance of states.....	78,281,294	74.1

TYPES OF PRACTICE.—The graduates were classified as follows, according to the nature of their practice: i. e., those in the general practice of medicine; those in general practice but giving special attention to some specialty; those who have definitely limited their practice to a specialty and those not practicing medicine. It was felt that the form of the questionnaires would tend to separate from the specialists those who, although they were giving special atten-

Table 6.—Medical College Graduates Practicing in Specified Communities, According to College, 1915 and 1920.

Medical College	Total 1915 and 1920	Communities of 100,000 and over	Communities under 100,000	Foreign Countries
All colleges.....	3,781	1,831	1,883	67
Albany.....	54	15	39	..
Arkansas.....	11	..	11	..
Baylor.....	33	14	17	2
Bellevue.....	143	120	23	..
Boston.....	22	9	12	1
Buffalo.....	84	52	32	..
California.....	25	20	4	1
Colorado.....	22	11	11	..
Columbia.....	138	101	35	2
Cornell.....	39	26	12	1
Creighton.....	80	12	38	..
Detroit.....	57	42	14	1
Emory.....	122	31	90	1
George Washington.....	34	18	15	1
Georgetown.....	30	20	10	..
Georgia.....	21	3	18	..
Hahnemann.....	40	16	24	..
Harvard.....	138	86	51	1
Howard.....	24	16	8	..
Illinois.....	97	60	36	1
Indiana.....	57	19	38	..
Iowa.....	65	15	49	1
Jefferson.....	235	92	134	9
Johns Hopkins.....	157	114	40	3
Kansas.....	24	9	15	..
Long Island College Hospital.....	107	94	13	..
Louisville.....	55	16	39	..
Marquette.....	31	18	13	..
Maryland.....	92	40	50	2
Medical College of Virginia.....	79	29	50	..
Medical Evangelists.....	21	5	12	4
Meharry.....	35	18	17	..
Michigan.....	93	40	48	5
Minnesota.....	88	44	44	..
Nebraska.....	44	18	26	..
Northwestern.....	81	31	50	..
Ohio State.....	55	23	32	..
Oklahoma.....	24	4	20	..
Oregon.....	20	11	9	..
Pennsylvania.....	149	59	85	5
Pittsburgh.....	40	19	21	..
Rush.....	158	68	90	..
St. Louis.....	82	39	41	2
South Carolina.....	31	2	29	..
Stanford.....	30	17	11	2
Syracuse.....	46	27	18	1
Tennessee.....	54	15	38	1
Texas.....	76	34	40	2
Tufts.....	88	42	43	3
Tulane.....	117	37	78	2
Vanderbilt.....	77	28	47	2
Vermont.....	53	15	37	1
Virginia, University of.....	46	21	25	..
Washington.....	65	28	32	5
Western Reserve.....	74	43	29	2
Women's Medical.....	25	12	11	2
Yale.....	23	13	9	1

tion to a specialty, were not limiting their practice to it. A certain number of these graduates are listed in medical directories as specialists. The number and per cent of the graduates for both 1915 and 1920 are listed in Table 7 according to the type of practice they are carrying on. In considering this table it is important to bear in mind that the figures for the graduates of the two years are not comparable in that the graduates of 1915 have been out of college eleven years as compared with six years for the 1920 graduates.

Table 7.—Medical College Graduates, According to Type of Practice, 1915 and 1920.

Type of Practice	Graduates of both years		1915 Graduates		1920 Graduates	
	Number	Per cent Distribution	Number	Per cent Distribution	Number	Per cent Distribution
All types.....	3,781	100.0	1,834	100.0	1,947	100.0
General practice.....	876	23.2	412	22.5	464	23.8
General practice but special attention to specialty.....	1,439	38.0	653	35.6	786	40.4
Limited to specialty.....	1,433	37.9	751	40.9	682	35.0
Not practicing.....	33	0.9	18	1.0	15	0.8

In order to have comparable data as to the tendency toward specialization of the graduates of 1915 and 1920 I have tabulated the 1920 graduates who will have limited their practice to a specialty when eleven years out of college as the 1915 graduates now are. The results are shown in Table 8. They are based on the statements of the 1920 graduates not now limiting their practice but intending to limit within the next five years. The tabulation indicates that 49.8 per cent of the 1920 graduates will have limited their practice to a specialty when eleven years out of college, as compared with 40.9 per cent of the 1915 graduates. These figures suggest a definitely increasing tendency toward specialization, probably en-

Table 8.—Graduates Who Will Have Limited Practice to a Specialty Eleven Years After Graduation, as Compared with 1915 Graduates.

	1915 Graduates	1920 Graduates
Total.....	1,834	1,947
Graduates now limiting practice.....	751	682
1920 Graduates now giving special attention to specialty who contemplate limitation within five years.....	...	216
1920 Graduates now doing general practice who contemplate limitation within five years.....	...	71
Total 1920 Graduates who plan to limit practice by 1931.....	...	971
Per cent of graduates specializing eleven years after graduation....	40.9	49.8

tirely uninfluenced by war service, which has been offered as the explanation of an apparently increasing number of specialists.

Carrying this tabulation still further and including the graduates of both years who have indicated their intention to specialize at any time in the future we find in Table 9 a total of 73.7 per cent of the 1920 graduates limiting their practice to a specialty as compared with 66.3 per cent of the 1915 graduates. Although these figures are based in part on a declaration of intentions they do seem to furnish further evidence of a somewhat greater tendency toward specialization on the part of the 1920 graduates.

Table 9.—Graduates Who Will Eventually Limit Their Practice to a Specialty if They Carry Out Present Plans.

	Graduates of both years	1915 Graduates	1920 Graduates
Total	3,781	1,834	1,947
Graduates now limiting practice.....	1,433	751	682
Now giving special attention to specialty who plan limitation.....	909	365	544
Now doing general practice who plan limitation.....	280	100	180
Total limiting or planning on limitation.....	2,622	1,216	1,406
Per cent eventually limiting to specialty.....	69.6	66.3	73.7

In Table 10 are listed, according to the college from which they graduated, those who have up to now limited their practice. As one would expect, there is considerable variation in the per cent of graduates of the various colleges who have limited their practice. The graduates of Johns Hopkins Medical School show the largest per cent of specialists for both the years 1915 and 1920 and the graduates of Harvard Medical School the next highest per cent. Although the number of graduates of many of the colleges included in the study is too small to warrant deductions, further study would undoubtedly show a certain tendency toward specialization on the part of graduates of the various colleges.

The classification of the specialties to which graduates had limited their practice presented considerable difficulty. That shown in Table 11 was finally adopted because it seemed to be relatively simple and all but 22 of the 1,433 specialties listed seemed to justifiably fit into it. The specialties reported many times involved only a small field in the specialty under which they were listed in Table 11. Under internal medicine, for instance, are included a considerable variety of recorded specialties, as follows: Internal Medicine (not otherwise specified); diseases of the chest; diagnosis; gastro-enterology; internal medicine and pathology; cardiology; metabolic diseases; heart and lungs; internal medicine and radiology; internal medicine and pediatrics; gastro-enterology and radiology; internal

Table 10.—Number and Per Cent of Medical College Graduates Who Have Limited Their Practice to a Specialty, According to College, 1915 and 1920.

Medical College	Graduates of both years			1915 Graduates			1920 Graduates		
	Total	Limiting to specialty		Total	Limiting to specialty		Total	Limiting to specialty	
		No.	Per cent of Total		No.	Per cent of Total		No.	Per cent of Total
All colleges.....	3,781	1,433	37.9	1,834	751	40.9	1,947	682	35.0
Albany.....	54	22	40.7	38	15	*	16	7	*
Arkansas.....	11	3	*	11	3	*	..	..	*
Baylor.....	33	10	*	10	3	*	23	7	*
Bellevue.....	143	39	27.2	71	28	39.4	72	11	15.2
Boston.....	22	10	*	14	7	*	8	3	*
Buffalo.....	84	25	29.7	42	15	*	42	10	*
California.....	25	13	*	10	6	*	15	7	*
Colorado.....	22	9	*	7	3	*	15	6	*
Columbia.....	138	57	41.3	62	29	46.7	76	28	36.8
Cornell.....	39	17	*	10	6	*	29	11	*
Creighton.....	50	10	20.0	30	6	*	20	4	*
Detroit.....	57	14	24.5	28	5	*	29	9	*
Emory.....	122	42	34.4	98	33	33.6	24	9	*
George Washington.....	34	12	*	18	6	*	16	6	*
Georgetown.....	30	12	*	21	10	*	9	2	*
Georgia.....	21	8	*	8	2	*	13	6	*
Hahnemann.....	40	7	*	14	3	*	26	4	*
Harvard.....	138	83	60.1	64	42	65.6	74	41	55.4
Howard.....	24	3	*	11	1	*	13	2	*
Illinois.....	97	30	30.9	50	17	34.0	47	13	*
Indiana.....	57	21	36.5	26	12	*	31	9	*
Iowa.....	65	27	41.5	20	11	*	45	16	*
Jefferson.....	235	70	29.7	105	40	38.0	130	30	23.0
Johns Hopkins.....	157	120	76.4	73	56	76.7	84	64	76.1
Kansas.....	24	9	*	8	5	*	16	4	*
Long Island.....	107	23	21.4	52	15	28.8	55	8	14.5
Louisville.....	55	14	25.3	39	12	*	16	2	*
Marquette.....	31	11	*	20	5	*	11	6	*
Maryland.....	92	35	38.0	49	18	*	43	17	*
Medical College of Virginia.....	79	25	31.6	63	19	30.1	16	6	*
Medical Evangelists.....	21	4	*	9	3	*	12	1	*
Meharry.....	35	..	..	25	..	..	10	..	..
Michigan.....	93	44	47.3	35	22	*	58	22	37.9
Minnesota.....	88	38	43.1	30	12	*	58	26	44.8
Nebraska.....	44	9	*	7	2	*	37	7	*
Northwestern.....	81	32	39.5	29	13	*	52	19	36.5
Ohio State.....	55	21	38.1	35	16	*	20	5	*
Oklahoma.....	24	8	*	13	4	*	11	4	*
Oregon.....	20	6	*	10	3	*	10	3	*
Pennsylvania.....	149	58	38.9	46	24	*	103	34	33.0
Pittsburgh.....	40	13	*	9	3	*	31	10	*
Rush.....	158	76	48.1	73	35	47.9	85	41	48.2
St. Louis.....	82	29	35.3	33	18	*	49	11	*
South Carolina.....	31	11	*	19	8	*	12	3	*
Stanford.....	30	14	*	14	5	*	16	9	*
Syracuse.....	46	19	*	12	5	*	34	14	*
Tennessee.....	54	24	44.4	43	17	*	11	7	*
Texas.....	76	32	42.2	29	15	*	47	17	*
Tufts.....	88	22	25.0	38	11	*	50	11	22.0
Tulane.....	117	42	35.8	59	20	33.8	58	22	37.9
Vanderbilt.....	77	31	40.2	59	25	42.3	18	6	*
Vermont.....	53	17	32.0	32	12	*	21	5	*
Virginia, University of.....	46	32	*	20	13	*	26	19	*
Washington.....	65	27	41.5	28	9	*	37	18	*
Western Reserve.....	74	26	35.1	30	13	*	44	13	*
Women's Medical College.....	25	7	*	18	5	*	7	2	*
Yale.....	23	10	*	7	5	*	16	5	*

*Per cent not shown when base is less than 50.

medicine and dermatology, and endocrinology. In a few instances double specialties such as "pediatrics and laboratory" or "pediatrics and cardiology" were reported. These were classified under what seemed to be the major specialty, or under "all other specialties." This latter group totaled 22 and included in addition to the double specialties such unusual ones as "aviation medicine," "geriatrics" and "healing leg ulcers."

Table 11.—Medical College Graduates Who Have Limited Their Practice, According to Specialty, 1915 and 1920.

Specialty	Graduates of both years		1915 Graduates		1920 Graduates	
	Number	Per cent Distri- bution	Number	Per cent Distri- bution	Number	Per cent Distri- bution
All specialties.....	1,433	100.0	751	100.0	682	100.0
Eye, ear, nose and throat.....	293	20.4	169	22.5	124	18.1
Internal medicine.....	261	18.2	136	18.1	125	18.3
Surgery.....	258	18.0	152	20.2	106	15.5
Pediatrics.....	122	8.5	45	5.9	77	11.2
Gynecology and obstetrics.....	90	6.2	44	5.8	46	6.7
Neuropsychiatry.....	80	5.5	35	4.6	45	6.5
Genito-Urinary.....	80	5.5	40	5.3	40	5.8
Radiology.....	59	4.1	32	4.2	27	3.9
Laboratory.....	57	3.9	25	3.3	32	4.6
Public health.....	48	3.3	26	3.4	22	3.2
Industrial medicine and surgery.....	27	1.8	18	2.3	9	1.3
Syphilology and dermatology.....	22	1.5	7	0.9	15	2.1
Hospital administration.....	14	0.9	8	1.0	6	0.8
All other specialties.....	22	1.5	14	1.8	8	1.1

Comparison of the figures in Table 11 for the graduates of 1915 and 1920 shows in general a very similar distribution. As might be expected, a relatively smaller number of 1920 graduates have up to the present limited their practice to surgery. On the other hand, 11.2 per cent of the 1920 graduates who have limited their practice, have chosen pediatrics as compared with 5.9 per cent of the 1915 graduates. This is undoubtedly explained by the increasing demand for pediatric service resulting from the large amount of public health educational work which, during the recent years, has been directed toward child welfare. If this is so, it tends to substantiate the claim that intensive public health activities increase the demands for the services of physicians.

In Table 12 are listed those who have limited their practice according to the size of the community in which they are practicing. The tabulation shows that nearly 50 per cent of those practicing in communities of 100,000 population or over have limited their practice to a specialty as compared to less than 30 per cent for those in the smaller communities.

GENERAL PRACTICE AS A PRELIMINARY TO SPECIALIZATION.—In question VI of the questionnaire—"After how many years of general practice did you limit your practice to a specialty?"—no specific information in regard to general internships was asked for. This should be kept in mind in considering the tabulation of the

Table 12.—Number and Per Cent of Medical College Graduates Who Have Limited Their Practice to a Specialty, According to the Community in Which They Are Practicing, 1915 and 1920.

Community	Graduates of both years			1915 Graduates			1920 Graduates		
	Total	Limited to specialty		Total	Limited to specialty		Total	Limited to specialty	
		No.	Per cent of Total		No.	Per cent of Total		No.	Per cent of Total
All communities.....	3,781	1,433	37.9	1,834	751	40.9	1,947	682	35.0
Cities of 500,000 population and over.....	1,132	524	46.3	516	270	52.3	616	254	41.2
Cities of 100,000 to 500,000 population.....	699	346	49.4	347	189	54.4	352	157	44.6
Balance of states.....	1,883	539	28.6	940	276	29.3	943	263	27.8
Foreign countries.....	67	24	35.8	31	16	51.6	36	8	22.2

answers to this question as shown in Table 13. The tabulation indicates an apparently greater tendency on the part of the 1920 graduates to enter a specialty without any preliminary general practice. However, the figures for the graduates of the two years are not comparable because the per cent for the 1920 graduates are calculated from a base representing those who have specialized during their first six years after graduation as compared with eleven years for the 1915 graduates. But even considering the 348 graduates of 1920 who limited their practice to a specialty without any previous

Table 13.—Medical College Graduates Who Have Limited Their Practice to a Specialty, According to Years of General Practice, 1915 and 1920.

Years of General Practice	1915 Graduates		1920 Graduates	
	Number	Per cent distribution	Number	Per cent distribution
All specialists.....	751	100.0	682	100.0
No general practice.....	227	30.2	348	51.0
Under two years.....	48	6.4	91	13.4
Two to four years.....	168	22.4	183	26.8
Five to nine years.....	254	33.8	41	6.0
Ten years and over.....	36	4.8	....	0.0
Time not reported.....	18	2.4	19	2.8

general practice and figuring the per cent from the base 791 (Table 8—total 1920 graduates who plan to limit practice by 1931) the result is 35.8 per cent as compared to the comparable figure of 30.2 per cent for the 1915 graduates.

GRADUATES HOLDING SALARIED POSITIONS.—In Table 14 are tabulated the graduates of both years holding either part-time or full-

Table 14.—Medical College Graduates, According to Kind of Salaried Position, 1915 and 1920.

Kind of Position	Graduates of both years		1915 Graduates		1920 Graduates	
	Number	Per cent Distribution	Number	Per cent Distribution	Number	Per cent Distribution
Total.....	3,781	100.0	1,834	100.0	1,947	100.0
With full-time position.....	620	16.4	278	15.2	342	17.6
With part-time position.....	689	18.2	301	16.4	388	19.9
With no salaried position.....	2,472	65.4	1,255	68.4	1,217	62.5

time salaried positions. It is difficult to state whether or not the figures for the graduates of the two years, which show a slightly larger per cent of the 1920 graduates holding salaried positions, are comparable. However, it is significant that 15.2 per cent of the 1915 graduates are now holding full-time salaries positions. The detail tabulation shows apparent tendencies in this respect on the part of graduates of certain colleges. Of the 1920 graduates reporting from one college, more than 40 per cent are now holding full-time salaried positions.

Table 15 shows those holding salaried positions tabulated according to the type of practice reported. As might be expected, a much larger per cent of those limiting their practice are holding full-time salaried positions than those in general practice and giving attention to a specialty. On the other hand, as shown in the third subdivision of this table, there is a more uniform distribution of those holding part-time salaried positions between those specializing and those not specializing.

Those graduates who have limited their practice and are occupying full-time or part-time salaried positions have been tabulated according to specialties and the results are shown in Table 16. The tabulation shows that an appreciable number from each of the specialties are occupying salaried positions. As might be expected, nearly all of those who have limited to certain of the specialties such as Laboratory, Public Health and Hospital administration are holding full-time salaried positions as are relatively large numbers of those who have limited to neuropsychiatry and radiology.

Table 15.—Number and Per Cent of Graduates Holding Salaried Positions, According to Type of Practice, 1915 and 1920.

Type of practice	1915 Graduates			1920 Graduates		
	Total	With any salaried position		Total	With any salaried position	
		Number	Per cent of total		Number	Per cent of total
All types.....	1,834	579	31.6	1,947	730	37.5
General practice.....	412	81	19.6	464	120	25.8
General practice but special attention to specialty.....	653	171	26.1	786	249	31.6
Limiting to specialty...	751	321	42.7	682	356	52.1
Not practicing.....	18	6	33.3	15	5	33.3

Type of practice	1915 Graduates			1920 Graduates		
	Total	With full-time salaried position		Total	With full-time salaried position	
		Number	Per cent of total		Number	Per cent of total
All types.....	1,834	278	15.2	1,947	342	17.6
General practice.....	412	28	6.7	464	37	7.9
General practice but special attention to specialty.....	653	57	8.7	786	66	8.3
Limiting to specialty...	751	188	25.0	682	234	34.2
Not practicing.....	18	5	27.7	15	5	33.3

Type of practice	1915 Graduates			1920 Graduates		
	Total	With part-time salaried position		Total	With part-time salaried position	
		Number	Per cent of total		Number	Per cent of total
All types.....	1,834	301	16.4	1,947	388	19.9
General practice.....	412	53	12.8	464	83	17.9
General practice but special attention to specialty.....	653	114	17.4	786	183	23.2
Limiting to specialty...	751	133	17.7	682	122	17.8
Not practicing.....	18	1	5.5	15	...	...

The nature of the work of those holding salaried positions together with the number holding the various types of positions is shown in Table 17. Of the total of 620 full-time positions listed, 213, or 34 per cent, are hospital, teaching or research positions. Of these positions 75 are held by 1915 graduates and 138 by 1920 grad-

Table 16.—Graduates Limiting Practice with Full-Time and Part-Time Positions, According to Specialty, 1915 and 1920.

Specialty	1915 Graduates			1920 Graduates		
	Total	With full-time position	With part-time position	Total	With full-time position	With part-time position
All specialties.....	751	188	133	682	234	122
Eye, ear, nose and throat....	169	14	21	124	55	11
Internal medicine.....	136	31	26	125	8	22
Surgery.....	152	36	35	106	34	21
Pediatrics.....	45	3	14	77	12	28
Gynecology and obstetrics....	44	3	6	46	5	13
Neuropsychiatry.....	35	20	3	45	32	7
Genito-Urinary.....	40	2	10	40	6	10
Radiology.....	32	9	9	27	14	5
Laboratory.....	25	18	3	32	28	4
Public health.....	26	24	1	22	22	..
Industrial medicine and surgery	18	9	2	9	6	..
Syphilology and dermatology..	7	1	3	15	1	2
Hospital administration.....	8	8	..	6	6	..
All other specialties.....	14	10	..	8	4	..

uates. Of the 59 holding full-time positions in public health, 26 are 1915 graduates and 33 are 1920 graduates. The 1920 graduates are also holding a larger number of the "group practice" and "assistant to other physicians" positions. On the other hand, the 1915 graduates are holding the larger number of the Veterans Bureau, Army, Navy and industrial positions.

The fact that a considerable number of those graduates who have limited their practice to a specialty are occupying full-time salaried positions and are not in private practice should be borne in mind in connection with a consideration of the tendency toward specialization. Thus it would seem that although Table 7 correctly classifies the graduates according to type of practice, it does not give a true picture of the extent of specialization on the part of those who are in the private practice of medicine.

With this idea in mind, those holding full-time salaried positions and those not practicing were eliminated and the result is shown in Table 18.

Although this study is based on first-hand information from a large per cent of the graduates of the two years included in the

Table 17.—Medical College Graduates, According to Kind of Salaried Position, 1915 and 1920.

	Graduates of both years		1915 Graduates		1920 Graduates	
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
All positions.....	620	689	278	301	342	388
Hospital.....	128	59	47	26	81	33
University (teaching and research)...	55	105	21	46	34	59
Hospital and university.....	21	16	4	10	17	6
Industrial.....	41	88	21	41	20	47
Public Health.....	59	104	26	48	33	56
U. S. Public Health Service.....	21	3	14	1	7	2
Other Governmental.....	4	5	..	2	4	3
State departments.....	8	10	2	4	6	6
City or county departments.....	19	84	7	30	12	45
Public health (N. O. S.).....	7	2	3	2	4	..
School medical inspection.....	10	72	3	27	7	45
Group practice.....	50	1	13	..	37	1
Asst. to other physician.....	32	18	8	4	24	14
Veteran's bureau.....	32	17	20	11	12	6
Army.....	41	1	40	1	1	..
Navy.....	31	1	21	1	10	..
Insurance.....	12	25	7	12	5	13
Laboratory.....	19	14	11	3	8	11
Railroad.....	3	34	..	15	3	19
Sanatorium (T. B.)..	23	5	12	..	11	5
Other institutions.....	10	12	3	5	7	7
Clinic service.....	3	36	..	13	3	23
Medical research.....	8	3	2	2	6	1
Medical missionary.....	9	..	2	..	7	..
Dispensary.....	1	7	1	4	..	3
All other positions.....	1	1	..	..	1	1
Two or more positions.....	17	52	11	22	6	30
Position not reported.....	14	18	5	10	9	8

Table 18.—Medical College Graduates who are Practicing and Are Not Holding Full-Time Positions, According to Type of Practice, 1915 and 1920.

Type of Practice	Graduates of both years		1915 Graduates		1920 Graduates	
	Number	Per cent Distribution	Number	Per cent Distribution	Number	Per cent Distribution
All types.....	3,139	100.0	1,544	100.0	1,595	100.0
General practice.....	812	25.9	385	24.9	427	26.8
General practice but special attention to specialty.....	1,316	41.9	596	38.6	720	45.1
Limited to specialty.....	1,011	32.2	563	36.5	448	28.1

study, proper evaluation of the results are difficult because of a considerable number of complicating factors.

However, there does seem to be evident a definitely increasing tendency toward specialization and toward the full-time salaried position in medicine. These tendencies are undoubtedly in response to opportunities offered and demands made by society upon the medical college graduates. It is extremely important that society be so educated that these demands will be in the best interest of the individual and society as a whole.

It is with pleasure that I express my appreciation to Miss Mary V. Dempsey, statistician for the Syracuse Health Demonstration for assistance and advice in the tabulation of the information furnished by those returning the questionnaires.

PERIODIC HEALTH EXAMINATION OF MEDICAL STUDENTS

H. S. DIEHL

Director of Students' Health Service, and Department of Preventive Medicine, University of Minnesota, Minneapolis

From time to time, in recent years, attention has been called to the large number of physical breakdowns suffered by medical students during their long, fatiguing courses, and frequently writers have proposed that at stated intervals during their courses medical students be given physical examinations. Columbia University has for several years been offering health examinations to their medical students, according to a procedure outlined by Dr. Edson B. Heck in the October, 1927, issue of this BULLETIN. In 1923, the Medical School of the University of Minnesota first took definite action toward providing physical examinations for its students by adopting and incorporating in the BULLETIN the following regulations:

RULES GOVERNING PHYSICAL EXAMINATIONS AND PROPHYLACTIC INOCULATIONS.

1. Physical examinations shall be required of all medical students before they enter upon the work of the freshman and of the junior years. These examinations will be performed at the beginning of the fall quarter respectively of the freshman and junior years, and no student will be permitted to enter upon the work of these years until he presents a certificate from the Students' Health Service that such an examination has been performed.

2. All students in the Medical School shall be protected against small-pox by vaccination, and no student will be permitted to enter the winter quarter of his freshman year until the Students' Health Service shall report that such immunization has been completed. Students who enter with advanced standing must be certified by the Health Service as to such immunization before registering for their second quarter in the Medical School.

3. All students entering the Medical School shall be tested by means of the Schick test as to immunity against diphtheria. Those students who are found to be non-immune must be protected by means of toxin-antitoxin inoculations, and no student will be permitted to enter the sophomore year

until the Students' Health Service shall report the immunization against diphtheria has been accomplished.

4. Medical students, particularly at the beginning of their junior year, are urged to avail themselves of the opportunity to be protected against typhoid fever and paratyphoid by antityphoid and paratyphoid inoculations which may be received at the Students' Health Service.

5. Registration will not be complete in the respective quarters named until these rules are fulfilled.

Upon special request, a few of these early examinations were performed by individual physicians, but the great majority were done by the Students' Health Service at the time the new students were being examined. The examinations were very detailed and thorough, but were done according to the unit system, i. e., the students passed from examiner to examiner for various parts of the examination; consequently, the examinations were more a search for defects than an educational procedure in regard to healthful living.

As a result of these examinations, many students had defects and abnormalities called to their attention, and later corrected, but it was realized that in following this procedure, two great opportunities were being neglected; first, the opportunity to study the individual health problems of each student, advising with him in regard to habits or conditions that needed correction or modification; and, second, the opportunity of giving to the medical student some very personal instruction concerning the procedures and technic of periodic health examinations.

On the basis of these considerations, it was decided to give each medical student, in the fall quarter of 1926-1927, a health examination that would be individual in character. The physicians who conducted these examinations were all internists, practicing in Minneapolis, who were not only competent in the practice of internal medicine but who were also interested in health examinations. The blanks utilized were modifications of the ones prepared by a committee of the American Medical Association.* Appointments were made by the Dean's office a week in advance of the examination. At this time, the students were given instructions in regard to filling out the history part of the blanks and in regard to obtaining some tests and laboratory work prior to the examination. These preliminary examinations consisted of height and weight measurements, vision and hearing tests (for the hearing test a Greybauer 3A audiometer was used), a urinalysis, a hemoglobin determination and a Wassermann test. (Later in the year a Pirquet test was added as one of the routine tests.) The results of these measurements and tests were recorded in the proper places, and the "history" filled in before the student met the examining physician. The time then allotted for each examination was one hour. Usually approximately forty-five minutes of this hour was devoted to the student scheduled for

*A copy of this blank may be had by writing to the author.

his examination and consultation, the other fifteen minutes being utilized to see students previously examined but referred for some special test, examination or consultation, or requested to report back periodically for observation.

Before beginning the actual physical examinations, the physicians reviewed in detail the history blanks which the students filled out, discussing and advising with them in regard to their habits, complaints, disabilities, worries, etc. The examination then performed was thoroughly and carefully done. Ordinarily, these examinations were completed entirely by one physician but whenever the examiner felt consultation desirable, the student was referred to the proper specialist, to the laboratory, roentgen or dental departments. On completion of the examination, each student was advised concerning the results of the examination and the status of his health and, whenever necessary, was given a definite health prescription to follow.

RESULTS OF EXAMINATIONS

The main purpose of these examinations was educational, but a summary of the conditions recorded indicates that a large number of abnormalities, more or less important, were observed (Table I).

The advice given to the students was recorded only when it applied to some specific condition. A summary of some of this advice is shown in Table II.

STUDENT OPINION CONCERNING THE EXAMINATIONS

Another purpose of requiring medical students to take these health examinations was to determine the reaction of students toward such examinations. In some institutions where annual examinations have been attempted they seem well established, but in others they were discontinued after a trial because students considered them merely another requirement of the institution and accordingly reacted unfavorably to them. The students of the Medical School were selected for these required examinations because it was felt that they would be more critical than any other group in the University of a required physical examination given by the Students' Health Service.

After all these examinations had been completed, each student was given a questionnaire in order to determine his opinion of the procedure. When these questionnaires were presented to the students assembled in class it was explained that these examinations were given this year on a trial basis, that no promises were made for repeating them in the future, and that every student was expected to give honest and candid replies to the questions listed because very probably these replies would be the basis on which future policy in regard to requiring such examinations would be determined.

TABLE I
PHYSICAL DEFECTS NOTED ON HEALTH EXAMINATIONS OF
431 MEDICAL STUDENTS

General		Cases %		Lower Respiratory Tract		Cases %	
Overweight (10-19%)	38	8.8		Bronchitis, acute	1	0.2	
Overweight (20% and over)	19	4.4		Bronchitis, chronic	1	0.2	
Underweight (10-19%)	61	14.1		Asthma	2	0.5	
Underweight (20%+)	8	1.9		Suspicious chest findings	8	1.9	
Asthenic	5	1.2		Healed pulmonary tuberculosis	6	1.2	
Pituitary dystrophy	2	0.5					
Athritis, chronic	8	0.7		Circulatory System			
Adenopathy, marked	6	1.4		Anemia, secondary	4	0.9	
Goiter, simple colloid	11	2.6		Hypertension—1st reading			
Goiter, adenomatous	1	0.2		130-139	55	12.8	
Diabetes, renal	1	0.2		140 or more	26	6.0	
Eye				Heart			
Conjunctivitis	1	0.2		Murmurs, probably functional	19	4.4	
Blepharitis	2	0.5		Mitral stenosis	1	0.2	
Coloboma	1	0.2		Mitral regurgitation	5	1.2	
Ptosis of lid	1	0.2		Aortic regurgitation	4	0.9	
Eye strain	3	0.7		Pericarditis, old	2	0.5	
Muscular unbalance	2	0.5		Extra systoles	4	0.9	
Defective vision:				Tachycardia—unexplained	10	2.3	
No glasses	11	2.6					
Not well corrected	15	3.5					
				Abdominal			
Ear				Hernia—inguinal	5	1.2	
Impaired hearing	12	2.8		Hernia—ventral	2	0.5	
Chronic otitis media				Amoebiasis (?)	1	0.2	
With discharge	9	2.1		"Indigestion history"	3	0.7	
Thickened and retracted drums	9	2.1		Recurrent appendicitis	3	0.7	
				Cholecystitis (?)	3	0.7	
				Constipation	13	3.0	
Nose							
Nasal obstruction	19	4.4		Proctological			
Markedly deviated septum	23	5.3		Hemorrhoids—external	13	3.0	
Epistaxis, recurrent	1	0.2		Hemorrhoids—internal	3	0.7	
Chronic nasal infection	10	2.3		Tumor—wall rectum	1	0.2	
Chronic sinus infection	8	1.9		Proctitis	1	0.2	
Hyperesthetic rhinitis	10	2.3		Anal fissure	2	0.5	
Cleft palate	1	0.2		Anal fistula	2	0.5	
"Frequent colds"	7	1.6					
				Dermatological			
Throat				Acne vulgaris	32	7.4	
Tonsils, infected	31	7.2		Acne roseacea	1	0.2	
Tonsils, "questionable"	8	1.9		Eczema	2	0.5	
Tonsils, infected remnants	6	1.4		Seborrhea	2	0.5	
Tonsils, markedly hypertrophied	14	3.2		Urticaria	2	0.5	
Tonsils, "frequent sore throat"	3	0.7		Pityriasis vesicularis	1	0.2	
				Keratosis of lip	1	0.2	
Teeth				Epidermophyton	4	0.9	
Teeth, carious	25	5.8		Furunculosis	3	0.7	
Teeth, devitalized	49	11.4		Tumor:			
Teeth, impacted	4	0.9		Small subcutaneous	1	0.2	
Teeth, unerupted	2	0.5		papilloma of chin	1	0.2	
Pyorrhea	10	2.3		osteoma	1	0.2	
Need prophylaxis	6	1.4		lipomata	2	0.5	
Need bridges	5	1.2		moles—pigmented	3	0.7	
				Bronchial cyst sinus	1	0.2	
Genito-Urinary							
Hydrocele	1	0.2		Orthopedic			
Varicocele	36	8.3		Faulty posture	38	8.8	
Testis, undescended	6	1.4		Flat feet	8	1.9	
Testis, atrophied	3	0.7		Ankylosis elbow	1	0.2	
Prostatic tenderness	1	0.2		Hammer toe	1	0.2	
Polyp of urethral meatus	1	0.2		Polio-deformity	1	0.2	
Herpes progenitalis	1	0.2		Old osteomyelitis	1	0.2	
Albuminuria	7	1.6					
Nephritis, history of	2	0.5		Neuropsychiatric			
Nephritis present	1	0.2		Fatigue and nervous exhaustion	4	0.9	
Nephrolithiasis	2	0.5		Nervous and intense	7	1.6	
				Insomnia	2	0.5	
				Trigeminal neuralgia	1	0.2	
				Migraine	6	1.4	
				Headache, unexplained	2	0.5	
				Paralysis 7th nerve	1	0.2	

TABLE II
SOME OF THE SPECIFIC ADVICE GIVEN TO STUDENTS AT HEALTH
EXAMINATION

General		Cases %	Circulatory		Cases %
Regime for reducing weight....	41	9.5	Advice re valvular defect of heart	6	1.4
Regime for gaining weight....	58	13.5	Advice re hypertension	4	0.9
General Hygiene	8	1.9	Dietary		
More sleep and rest	8	1.9	Regimen for constipation.....	13	3.0
Need recreation and relaxation	15	3.5	Dietary advice	15	3.5
Stop extra-curricular work....	1	0.2	Drink more water	25	5.6
Change rooming place.....	1	0.2	Drink less water	1	0.2
Re nervousness.....	3	0.7	Decrease coffee	11	2.4
Re sex problems	2	0.5	Decrease candy	3	0.7
Re financial worries.....	2	0.5	Decrease tobacco	11	2.6
Referred to neuropsychiatrist..	3	0.7	Exercise recommended		
Eye—Ear—Nose—Throat			General	50	11.6
Refractions	35	8.1	Postural	28	6.5
Consultation re eye.....	9	2.1	Foot	3	0.7
Consultation re ear	30	7.0	Abdominal	4	0.9
Consultation re nose and throat	46	10.7	Immunizations recommended		
Advise tonsillectomy	45	10.4	Anti-typhoid	27	6.3
Advise sub-mucous resection....	11	2.6	Anti-diphtheria	13	3.0
Hay fever prophylaxis.....	5	1.2	Laboratory studies		
Referred to Surgeon			Blood chemistry	3	0.7
Re hernia	5	1.2	Blood cell studies	1	0.2
Re appendectomy	2	0.5	Basal metabolism	9	2.1
Re heratosis	1	0.2	Sugar tolerance	3	0.7
Re hemorrhoids	2	0.5	Further urinalysis	15	3.5
Re anal fissures and fistulae....	3	0.7	Stool examinations	3	0.7
Re cryptorchism	1	0.2	Roentgen Rays		
Re tumors, moles or polypi....	6	1.4	Of teeth	39	9.0
Re circumcision	1	0.2	Of heart and mediastinum.....	3	0.7
Re orthopedic conditions.....	8	1.9	Of chest	11	2.6
Skin			Of gastro-intestinal tract.....	3	0.7
Acne regimen	17	3.9	Teeth		
Referred to dermatologist.....	5	1.2	Dental treatment or consulta- tion	49	11.4
			Dental prophylaxis	8	1.9

The questions asked were:

1. Did this examination discover any physical defects or abnormal condition which you did not know existed?
2. Did it impress upon you the importance of any physical defect or abnormal condition which you have?
3. Did it relieve your mind of worry concerning any physical defect or abnormal condition which you have, or which you thought you had?
4. Did it call to your attention any habits, bad from the point of view of health, which you have been practicing?
5. Do you feel that the advice given will be of value to you?
6. Are you following the advice given?
7. How frequently do you think students should receive such examinations?
8. Have you any suggestions for facilitating or improving these examinations from the students' point of view?

These replies show a surprisingly general endorsement of the examinations. If the examinations discover unknown physical defects in 10 per cent of the students, explain the importance of correcting defects in 24 per cent, they probably are worth-while alone for the actual physical survey. But if the examiners give "health advice" to the students which 76 per cent feel will be valuable to them and 71 per cent are following, the procedure seems doubly valuable. It

was surprising, but encouraging, that 88 per cent stated that in their opinion medical students should be required to have similar examinations at least once each year. With this last statement as a basis, steps have been taken to make this health examination an annual procedure for medical students.

Question 8 asks for "suggestions for facilitating or improving these examinations, from the student's point of view." Some of the replies to this question are of interest and possibly of value. The more frequent comments were: Twenty-one students suggested that the examinations should include a roentgen-ray examination of the chest; 29 felt that it should be more extensive and thorough; 3 thought that more time should be allowed; 3 thought that more laboratory work should be done; 6 suggested that the examinations should be followed up to determine whether the students are following the advice given them; 3 suggested that more advice should be given.

A few of the comments are:

"Advice was too superficial."

"They were well done. I have no adverse criticism."

"None—except time wasted for students by keeping them waiting after time of appointment."

"To me this appears to be a splendid idea. The reasons the first three questions were answered "No" was because I had been having frequent physical examinations previous to the one I had at the Health Service."

"Have all the physicians examining given a thorough physical, as good as mine."

"Not following advice given, which was to cut down considerably on smoking."

"Possibly a closer check on tests taken—such as metabolism—followed up by some examining physician, would clear up questions in the individual's mind which were brought out after the physical examination."

"Student might receive a memorandum of corrective habits—otherwise one or more of the details may slip his mind—or at least would make the suggestion more effective."

"I believe these examinations are too superficial, perhaps. Why not do a complete urinalysis, and blood analysis? Basal metabolism, etc."

"I think the examinations are good and worth being continued."

"My mind is not entirely relieved on one point yet."

"The way this examination was conducted was satisfactory, as a whole, I believe. As it is continued some of the minor details of actual operation will no doubt work out to the benefit of all students, and will probably do away with some of the sad cases of tuberculosis contracted in our own class."

"The only possible suggestion I have to make is to make them more thorough. Should be annual without question."

"The value is questionable among medical students who usually take care of any defects early. Chest plates might be of some value."

"The examinations, although perhaps superficial, seemed sufficiently thorough for ordinary purposes. I was given advice on gaining weight, both hygienic and dietary. The advice was clear. No other abnormalities were found."

"The examinations I believe should be more complete in case suspicious findings occur. Also more advice should be given and attention paid to complaints."

"Should be more thorough—more of it, especially in the form of roentgen-rays. I think too much is based on questionnaire, and not enough work on physical condition."

TABLE III
Opinions of Medical Students Regarding Health Examinations
Number replying to questionnaire: Seniors, 85; Juniors, 82; Sophomores, 109; Freshmen, 85; Total 361

	Per cent. "YES"					Per cent. "NO"					Per cent. "SOMEWHAT"					Per cent. "NO ADVICE GIVEN"									
	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group					
Did your examination discover any physical defect or abnormal condition which you did not know existed?	6	13	10	13	10.5	94	87	90	87	89.5															
Did it impress upon you the importance of any physical defects or abnormal condition?	24	56	32	47	39	76	44	66	53	61															
Did it relieve worry about above condition?	10	35	16	35	24	90	65	84	65	76															
Did it call attention to habits, bad from a health point of view, which you have been practicing?.....	26	33	19	21	24	74	67	81	79	76															
Do you feel that the advice given by the physician will be of value to you?.....	77	66	82	92	76	8	9	6	4	7	2	3	1	2	15	23	9	4	15						
Are you following the advice given?.....	59	62	72	92	71	14	9	10	2	9	12	6	9	1	6	15	23	9	5	14					
	Every 6 months.										Annually					Every 2 years.					Every 4 years.				
	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group	Sr.	Jr.	Soph.	Fresh.	Group					
How frequently do you think students should receive such examinations?.....	8	7	4	4	6	68	54	55	88	82	20	9	7	6	10	4	0	3	2	2					

"Have examinations by doctors who are skilled not only in medicine but also in problems of mind."

"I think that by giving medical students, and all students in fact, yearly examinations it will impress on their minds the importance and value of such a thing, and they will therefore emphasize it in their practice—the idea of prevention rather than cure, when possible."

"So long as men in charge manifest a positive interest in case, I can offer no suggestion."

Such remarks, critical and commendatory alike, indicate a very positive interest on the part of the students in the examination procedure and probably will serve as a basis for some improvement in the examination procedure for the future.

SUMMARY

1. During the fall of 1926 a health examination was required of every student in the Medical School of the University of Minnesota.

2. An appointment of one hour was given for each examination, prior to which the student had filled out the "history blank" and had various tests, measurements and laboratory work performed.

3. Although the primary work of the examination was educational, numerous physical defects and abnormalities of greater or less importance were discovered.

4. The replies to a questionnaire given to each student after all the examinations had been completed indicated a very general interest in and endorsement of the procedure; 88 per cent of the students stating that in their opinions health examinations should be required of medical students at least once a year.

5. The annual health examinations of medical students, properly performed, should serve not only to discover physical defects and to instruct students in regard to improving their habits of living, but also should prove a most effective method of educating them to conduct similar examinations.

THE RELATION OF THE LIBERAL ARTS COLLEGE TO THE PROFESSIONAL SCHOOLS*

E. P. LYON

Dean, University of Minnesota Medical School, Minneapolis

The discussion of this topic may not require any definition of the Liberal Arts College, but it seems to require some understanding of what is meant by a professional school. We are all familiar with the traditional three "learned professions;" theology, law and medicine. Up to 1850, or thereabouts, I suppose the word "profession" meant one of these callings. Those engaged in these professions enjoyed an honorable and responsible position in the community. They were really marked off from all others.

Now have come up a small host of new professions: teaching, engineering (four or five kinds), architecture, scientific agriculture, forestry, music and the other fine arts, chemistry in the technical field, pharmacy (a very old calling but not originally called a learned profession), journalism, dentistry, nursing, home economics, even business, are all prepared for in a formal way and regarded as definite professions, not only by those who work in these fields, but by the public generally. Then there are the numerous other occupations founded more or less on science—generally less. Examples are optometry, chiropody, osteopathy, chiropractic and other pseudo-medical cults, beauty specialists, barbers (isn't hair cutting a surgical operation?), embalmers, etc., etc. Each devotee of these multifarious callings fondly speaks of his or her "profession."

I shall assume that we are concerned chiefly with those professions which require or ought to require, more than a high school training as preliminary to professional study. Medicine is about the only one that is definitely, universally and legally in this position. But law is approaching the two year college standard. The ministry, although it has had various avenues of approach, is usually entered through the Arts College. Teaching above the grades tends to be standardized from the Arts College. The colleges of education usually require two years of college work before enrollment in professional courses. Dentistry now requires one year of college work as preliminary to professional study. Some dental educators speak of two years. Engineering holds back to the high school level. But the matter is under discussion and there is no doubt that the higher walks of engineering demand a broader training than that afforded by the average engineering college or technical school. I think high school graduates should have at least one year of preliminary general training before entering the engineering curriculum, and, preferably, two years. Or best of all might be two kinds of

*Read before the College Section of the Minnesota State Teachers' Association.

engineering courses; one frankly practical, a high class trade school; the other broadly educational.

Now the question is as to the relationship of the liberal arts college to the professional schools which begin their work at some point above the high school level.

The other night I was reading a paper published in 1910 in the proceedings of the Association of American Universities. The article was so beautifully written and so convincing that I looked back to see who wrote it and found the name of Woodrow Wilson, at that time president of Princeton. Mr. Wilson stated that the central thought of the professional school is individualistic; that it is concerned with the student as a man in a narrow sense; that professional education is a "private interest of the person who is seeking the training;" that it stresses the idea of livelihood; that it tends to specialization in technical procedures, to the neglect of broader aspects of the mind and broader visions of life. The professional student's point of view, he said, is centered in himself. He achieves his success by doing a thing as well as it has been done before. "He is under bonds to stand by the *status quo*, for the *status quo* is his opportunity."

I am sure we will admit that all this is true. That it is not, however, a complete or adequate picture of professional education or the professional student, I think we will also agree. For example, there is the ideal of service which is strong in professional education and strong among professional students. Nevertheless, when all is said, there remains a narrowness of outlook, a constricted retina in any form of specialism. It is as when one digs a well. As soon as he gets beneath the surface of the ground the sky becomes but a circle, which grows smaller the deeper he goes. The optical expert calls such a restriction a "field stop." Probably we are all aware of this tendency in our own province of knowledge.

Over against this Mr. Wilson pictured the function of the arts college. It is concerned, he said, with "a discipline whose object it is to make the man who receives it a citizen of the modern intellectual and social world, as contrasted, on the other hand, with a discipline (that of specialization or professionalism) whose object is to make him an adept and disciple of a special interest." Going on from that he said, the object of the arts college is not to inculcate knowledge, for inside of a few years the graduate has lost nearly all the facts he acquired so painfully—or painlessly—in college. The objects of the college are, says Mr. Wilson, first discipline, second orientation, third enlightenment.

By discipline he means, of course, the development of habits. I quote his words: "the habit of looking facts so steadily in the face that the atmosphere disappears from them and you see them cold as they are; the habit of stating things with precision, of reasoning

with exactness, of reasoning with fearlessness, of moving from premises to conclusion like those who desire to see the truth and desire not to be deceived."

By orientation he means the discovery of the relation of a man "to the intellectual and moral content of the world." He means that a man should find out where he is located, that is, what his relations are. He says it is incorrect to say that a man has lost himself in a desert or a jungle or a fog. What he has lost is not himself but the rest of the world. As soon as he knows the direction of some fixed body, he can get out. He is not lost. The modern man needs to be oriented with reference to the past and present life of his world.

By enlightenment he means "giving a man the freedom of the modern world so that he will not bury his head in a particular interest, but will stand high enough to survey the field and see where the tides move, know what the general interests of society are as well as the particular interests of portions of society."

"One of the most significant things about any subject," says Wilson, "is its relation to other subjects. No man can afford for his own intellectual safety to specialize in any field until he has traversed enough of the general field of knowledge to know the relation of his special field to the general field and to check his processes by the established intellectual processes of the world."

As a basis of this discipline, orientation and enlightenment Mr. Wilson recommends, firstly, the intensive study of a pure science. He thinks every educated man needs to know, not the facts of science, but the methods of science, the methods by which the material world is made to divulge its secrets. Secondly, he recommends pure philosophy in order to fill in that sector of life which science cannot fill—the answer to the question what it is all about—the spiritual sector. Thirdly, Mr. Wilson thinks the educated man needs to be acquainted with literature, because this is the record of the thinking of mankind in all ages. Fourthly, there are history and politics; and no one, he says, can be called educated—that is disciplined, oriented, enlightened—who does not know something of what the world has been and what men have done in their world.

Now, I assume you are as willing, as was the company of university presidents and deans who originally listened to Mr. Wilson's speech, to agree with all that he so beautifully said in regard to the arts college. I assume further that you will again agree that his picture is incomplete. The arts college is something more. The arts college is not unconcerned with the livelihood of its students. Even if the college were unconcerned, the students themselves are not unconcerned about their livelihood. They want something that they can use. The arts college tends to become professionalized. Prospective teachers are there in numbers. Prospective ministers are seeking the elements of their trade. Future business men want to

know about economic laws. Home makers want to know how to cook and take care of babies, and so on all along the line.

I wish, therefore, that I could point out a relation between the arts college and the professional school based on the clear-cut distinctions set forth in Mr. Wilson's article. The arts college taking the student to the high mountain of life and giving him the general view of the world; teaching him to climb, showing him where he is, leading him to evaluate all that there is to see. The professional school then taking this all-round athlete and training him particularly in the technic and methods of his chosen specialty. But I do not think that is the way it works out.

Yet we all agree with what he says in a general way. Specialism without breadth is dangerous. A line, no matter how long, has no area. A circle is the figure of greatest area for a given length of boundary. But no part of the circle is farther from the center than any other. Specialism squeezes the circle. Distance is gained by loss of breadth—and loss of area. Life is short and the mind is finite. As always you are between the deep sea and the gentleman with horns. Compromise is essential. You come down to some arbitrary midway solution. You sacrifice some discipline, orientation, enlightenment to gain some individualization. You avoid extreme individualization to gain some discipline, orientation and enlightenment. The result is unsatisfactory but inevitable.

But if we cannot designate a clear cut division of labor along the line of Mr. Wilson's distinction between the arts college and the professional school, we can, at least, allot the load in different proportions between the two institutions. To the arts college we can give in larger measure the task of orientation and enlightenment. To the professional school less of these and more of the narrow training essential for the carrying on of the chosen main life work.

I have already referred to the professional aspect of the arts college. It really extends further, probably, than many of you suspect. For example we do not in this country ordinarily think of biology, physics and general chemistry as part of the medical course. But under the educational system of Germany and other European countries these branches are distinctly professional. The student enters the medical school direct from the gymnasium and these subjects constitute his first year of medical work. I do not know exactly how these subjects are taught in German medical schools, but I think our system is likely to be better from the standpoint of today's discussion in that the arts college probably teaches biology, chemistry and physics from a more general point of view—more in the manner that Mr. Wilson would like.

In the case of law, teaching, business, journalism and the ministry the so-called preprofessional training may not have become so

professionalized as in medicine. I hope not, but I think the tendency is there and that it cannot wholly be avoided.

I am frank to say that the insistence of the medical schools on strong courses in the so-called premedical sciences leaves too little time in the premedical course for the other types of subjects which Mr. Wilson thinks essential to orientation and enlightenment. Personally, I think we have gone too far in prescribing the premedical curriculum. Medical educators have stretched the circle to an extremely elongated oval. Entering medical students know too little of history and literature. They are lamentably weak in language—even of English; and philosophy is hardly more than a meaningless word in their vocabulary. Perhaps, a helpful suggestion would be that the arts colleges enter protest against the present premedical curriculum and take a larger part in laying out a more liberal and liberalizing course.

I know many of you would like to accomplish this end by keeping the future professional students in the arts college for a full four years course. But here, again, compromise is essential. The very large amount of study and experience needed to make a safe doctor, the necessity that men get into this study while their minds are fresh and elastic, the liability of over-education and staleness at the expense of interest and initiative, and, finally, the desirability, if not necessity, that men begin their life work at the age of 25 or 26, all speak strongly and, I believe, decisively against further lengthening of medical education.

At this point I should like to confess a small heresy. I know how the arts college dislikes to let go of its preprofessional students at the end of two years. You dislike to lose them from your student body and from your list of alumni. Yet what we are all working for is to prepare well-trained men for the work of the world. We are not working—or at least I hope we are not working—to get more students in our classes or more alumni on our rolls.

Nevertheless the arts college having had the student for two years is entitled to label him as part of her product and to create a permanent tie between him and the institution. My heresy, therefore, is the belief that the arts college should accept the two years of pre-clinical science of the medical course as of collegiate value and give its bachelors degree to medical students even though this part of their work has not been pursued within the walls of the institution where the student did his premedical study.

I think the other arts colleges should do exactly what the College of Science, Literature and the Arts does at the University of Minnesota. Students spend two years in the premedical course, then two years in the medical school; and then they get the B.S. degree from the College of Science, Literature and the Arts.

This college may salve its conscience by the fact that the last two years work is done under men who hold rank in the college as well as in the medical school or by the fact that the work is done in the same university. You, on the other hand, from other colleges, may refuse on the ground that you do not control the work in medical science or that the two years of preclinical science does not conform to your curriculum or that you desire to create class or college spirit or that you have a rule against crediting the last year in absentia. But when you get down to bed rock, the B.S. or A.B. ought to stand for achievement and merit. If you would make the preprofessional students whom you train (if in the end they deserve it) alumni of your colleges, I believe some of the dissatisfaction you feel with the short time preprofessional class would be alleviated.

As I have indicated, I believe the American plan by which the arts colleges conduct preprofessional courses, or, if you will, conduct a part of the professional course, is, on the whole, wise. This means that you perform for us another little task which perhaps you do not appreciate. You take a heterogeneous lot of high school graduates aiming rather shakily, we will say, at medicine (since I know most about that), and you sort out the better marksmen for our professional shooting gallery.

This is a very great service. At the University of Minnesota the failures in the freshmen medical class which formerly ran as high as 20 per cent are down to 2 or 3 per cent. We set a fairly high qualitative standard for admission, and we are saved a large amount of wasted effort and expense in attempting to educate poor mentalities in the science and art of medicine. We owe you a big debt for finding and sending on to us those best prepared to enter the profession of medicine.

Presumably this seems a thankless task to you, but it is one you have to perform all along the line for the good of the community. It means effort and expense to you. And that leads me to remark, quite extraneously to the subject assigned to me, that I wonder whether the fullest efforts have been made to keep out of college a host of high school graduates who cannot be expected, on account of their intellectual limitations, to profit by higher education.

In New York state a student must have a Regent's certificate in order to enter college, and to gain this the student must take examinations set by the State Department of Education. This must make for more uniform results than those gained in states where each high school sets its own examinations and is largely the judge of its own standards. I know that too often favoritism, "pull" and the very inertia of attendance bring to graduation from high school those who have neither the intelligence nor the initiative to profit by college study. You are wasting energy through lost motion in running this sorting machine. Is it not possible to get the grain run

through a fanning mill before it enters your grist? Would it not be possible for our state Department of Education to do what the New York Department does?

Another helpful relation which the colleges hold toward the professional schools is the vocational guidance which the colleges now, although perhaps imperfectly, offer. I think this function is being recognized more and more both in secondary and also in higher educational institutions. If you can steer the young man and woman right or better, you can save them loss of time and a sense of disappointment if they start on the wrong track and have to back up and start again.

I am sure as college men you consider character building one of your serious purposes. If you hold character building to be something additional to discipline, orientation and enlightenment, something apart and beyond the formative influences of college life as we ordinarily think of it, then, of course, you are performing another useful work for the professional student and the professional school. Personally, I think what we call character, apart from the hereditary factor, is mostly unconscious reaction to environment. Therefore, I would not put the professional school out of the character building class. For if hard, honest work, enthusiasm for progress, painstaking labor for new facts, and a desire for service are elements of character, they are found in large degree in professional schools. Still, you get the students at an impressional and formative stage and your influence is very important.

In like catagory might be mentioned the importance which students learn with you to attribute to their bodily health and the methods you provide for preserving and improving it. But, of course, all these might be considered under Mr. Wilson's inclusive functions.

I conclude, therefore, by saying that we are all engaged in the same job. We all want to make American boys and girls into American men and women of strength, vision and independence, and to give them such technical equipment as will enable them to follow their respective callings successfully. We are painting with the same brush, though some may emphasize one part of the picture and others another part.

If I were founding a new university I think I would have no colleges, not even an arts college. Perhaps, there would be a junior college and a university college. The unit of organization, however, would be the department, itself an indefinite and imperfectly delimited part of knowledge. Through the varying disciplines of the departments I would conduct my students, each to the goal he had set for himself. At one campus gate he would come out a lawyer; at another, a doctor. But there would be no fences or walls inside.

The field of education—the domain of knowledge—is not a territory of fences and barns. It is free pasturage. It is range country.

Our brands, our corrals, our indefinite boundaries, our petty pre-
 emptions are of insignificant importance. The food, the water, the
 air and the type of stock are of fundamental importance.

THE FORMAL USE OF THE HIPPOCRATIC OATH FOR MEDICAL STUDENTS AT COMMENCEMENT EXERCISES

EBEN J. CAREY

Acting Dean, Marquette University School of Medicine, Milwaukee, Wisconsin

In response to letters addressed to the deans of 79 medical schools in the United States and Canada, inquiring as to the use of the Hippocratic oath for medical students at commencement exercises, 74 replies have been received. A study of these letters indicates that 13 of the 79 schools require candidates, before the degree of Doctor of Medicine is conferred upon them, to take the Hippocratic oath (in various forms and modifications) at the commencement exercises. The 14 schools using the oath are: University of Buffalo Medical Department, Buffalo; Columbia University College of Physicians and Surgeons, and Long Island College Hospital; Cornell University Medical College, New York City; Detroit College of Medicine and Surgery, Detroit; Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania, and Jefferson Medical College, Philadelphia; Marquette University School of Medicine, Milwaukee; Syracuse University College of Medicine, Syracuse; Dalhousie University Faculty of Medicine, Halifax, Nova Scotia; McGill University Faculty of Medicine, and University of Montreal Faculty of Medicine, Montreal, Quebec; Queen's University Faculty of Medicine, Kingston, Ontario.

There are three schools, the deans of which contemplate the formal use of the Hippocratic oath before the student receives his degree of Doctor of Medicine. The results of the correspondence, however, would indicate that the deans of many of the schools were interested in the form in which the oath was administered at the commencement exercises and the number of schools following this old custom. Two of the institutions give their students the Hippocratic oath during the course in medical ethics. The dean of one school advises that the honorary society of the school administers the oath to all its initiates. Another dean stated that the oath is used at the alumni dinner. Two deans made known the fact that the oath is read to students during a course in medical history. The deans of various other schools gave the information that the oath is read to students on certain special occasions, copy given to the fourth year class, administered during class day exercises, copy of oath framed in medical library, and attention of students called to the

oath in various ways, but not administered during commencement exercises.

One dean considers the Hippocratic oath an interesting document illustrating the development of medical ethics, that the passages regarding relations to patients are admirable, but that the remainder of the oath is either absurd or ethically wrong. He refers particularly to those passages that prohibit the dissemination of medical knowledge to any but a chosen few in what amounts to essentially a secret guild. He remarks that medicine has passed far beyond that stage and medical knowledge is no longer the exclusive property of the physician, nor should it be. He states the oath should be rewritten.

A modification of the Hippocratic oath has been administered for nearly one hundred years at the McGill University Faculty of Medicine, to graduates at commencement exercises, before the degree is conferred, and has been in use for twenty-five years at the Queen's University Faculty of Medicine.

Thirty-eight deans replied that the oath was not used by them and gave no expressions of opinion as to its merits. Five declared that they had two-year schools and therefore did not use the oath, but one of the deans expressed the hope that they would soon have a complete course, advising that he is in favor of using the Hippocratic oath. One dean said that the university commencement exercises were too crowded to make the formal use of the Hippocratic oath feasible. Another stated, after the information that they did not use the oath, "I believe there are still a few colleges using it, and it might be interesting for all of us to revert to this old custom." One dean of a Canadian school said the oath was not used at commencement, but copies were placed in students' rooms and their attention drawn to it; however, he intends to revive the custom of administering the oath at commencement exercises.

THE HIPPOCRATIC OATH AND ITS MODIFICATIONS IN USE

The eleven forms and modifications of the Hippocratic oath and the schools using each form are given below:

I. "I swear by Apollo, the physician, and Aesculapius, and Health, and All-heal, and all the gods and goddesses, that according to my ability and judgment, I will keep this oath and stipulation; to reckon him who taught me this art equally dear to me as my parents, to share my substance with him and relieve his necessities if required; to regard his offspring as on the same footing with my own brothers, and to teach them this art if they should wish to learn it, without fee or stipulation, and that by precept, lecture and every mode of instruction, I will impart a knowledge of the art to my own sons and to those of my teachers, and to disciples bound by a stipulation and oath, according to the law of medicine, but to none others. I will follow that method of treatment which, according to my ability and judgment, I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to anyone if asked, nor suggest any such counsel; furthermore, I will not give to a woman an instrument to produce abortion. With purity and with holiness I will pass my life and practice my art. I will not cut a person who is suffering with

a stone, but will leave this to be done by practitioners of this work. Into whatever houses I enter I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption; and further from the seduction of females or males, bond or free. Whatever, in connection with my professional practice, or not in connection with it, I may see or hear in the lives of men which ought not to be spoken abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men at all times; but should I trespass and violate this oath, may the reverse be my lot."

The above form of oath was submitted by the deans of the schools listed below:

The dean of the University of Illinois, Chicago, stated the oath is not used at commencement exercises, but is read to the freshmen and also to the seniors on certain special occasions.

The dean of Meharry Medical College, Nashville, Tennessee, said they do not use the oath at commencement exercises, but a brief course in medical history is given to senior medical students and this oath is taught.

The dean of the University of Michigan, Ann Arbor, advised they do not give the oath at commencement, but it is administered by Alpha Omega Alpha, honorary society of the school, to all its initiates.

The reply received from the Woman's Medical College of Pennsylvania, Philadelphia, was that they always use the oath at commencement exercises. They advise that it is of interest to know that each year they find some student who is unwilling to swear by Apollo. The dean has always prefaced the delivery of the oath by a statement in which she says, "we swear by the spirit of Apollo as expressed in the oath".

The dean of the University of California, San Francisco, gave the information that the oath is not used at commencement exercises, but the executive head of the department of medicine, as a personal matter, has recently given to members of the fourth year class copies of the Hippocratic oath.

The dean of the University of Toronto advised that the oath has not been used in late years, but it was used by them some years ago.

II. A 17th Century Version of the Oath of Hippocrates.¹

I, Hippocrates, doe vow, promise and protest to the great God Apollo and his two Daughters, Higine and Panadie, and also to all the gods and goddesses, to observe the contents of this oath, or tables wherein this oath is carved, written or ingraved, so farre as I can possible, and so farre as my wit or understanding shall be able to direct me, viz, that I yeld my selfe tributarie and debtor to the Maister and Doctor who hath instructed me and shewed mee this science and doctrine, even as much or rather more than to my Father who hath begotten me, and that I shall live and communicate with him and follow him in all necessities which I shall know him to have, so farre as my power shall permit, and my goods shall extend. Also that I shall love and cherish his children as my brothers, and his progenie as mine

1. The Presages of Divine Hippocrates. Divided into three parts. With the Protestation or Oath which Hippocrates caused his Schollers to make at their entry with him to their Studies. The whole collected and translated by Peter Lowe Scottish-man, Doctor in the Facultie of Chyrurgery in Paris. At London, Printed by Thomas Purfoot. A. D. 1634.

owne. Further, that I shall teach, shew, and demonstrate the sayd science (gratis) without reward or covenant, and that I shall give all the Cannons, rules, and precepts, freely, truly, and faithfully to my Maister his children, as to mine owne, without hiding or concealing anything, and to all other Schollers who shall make the same oath or protestation, and to no others. Also that in practising and using my science, towards the sicke, I shall use onely things necessary, so farre as I am able, and as my spirit and good understanding shall give unto mee, and that I shall cure the sicke as speedily as I may, without dilating or prolonging the Maladie. And that I shall not doe anything against equitie, for hatred anger, envie, or malice, to any person whatsoever: Moreover, that I shall minister no poyson neither counsell nor teach poyson, nor the composing thereof, to any: Also, that I shall not give, nor cause to be given, nor consent that anything be applied to a woman breeding, or bigge with childe, to destroy, or make her voyde her fruit. But I protest to keepe my Life and Science purely, sincerely, and inviolably, without deceit, fraude, or guile. And that I shall not cutte, nor incise any person having the stone, but shall leave the same to those that are expert in it; and furthermore, I shall not enter into the Patients house, but with purpose to heale him: and that I shall patiently sustaine the injuries, reproaches, and loathsomnesse of sicke men, and all other base raylings; and that I shall eschew as much as I may, all venerious laciuousnesse. Moreover, I protest, be it man, woman, or servant, who is my patient, to cure them of all things that I may see or heare either in mind or manners, and I shall not bewray that which should be concealed and hidden, but keepe inviolable, with silence, neither reveale any creature, under paine of death. And therefore I beseech our Gods, that observing this Protestation, promise and vow intirely and inviolably, that all things in my life, in my Art and Science, may succede securely, healthfully, and prosperously to me, and in the end eternall glory. And to him that shall violate, transgrezze, or become perjured, that the contrary may happen unto him, viz, misery, calamitie, and continuall maladies.

The dean of Boston University School of Medicine sent the above form of oath, explaining that they give a course in professional ethics in the third year and at the close of the course each student is given a copy of the Hippocratic oath, autographed by the professor and by dean of the medical school. He stated they do not use the oath in connection with commencement, that he has often thought it might be worth while to do so, but it has so far not been put into effect.

III. "You do promise on your honor to follow that plan of regime and of treatment which, according to your abilities and judgment, you shall consider for the best interests of your patients, and to abstain from whatever is deleterious and hurtful. You will give to no one asking it any deadly medicine, or suggest any such counsel; and, in like manner, you will use no means for unlawfully destroying the lives of the unborn.

Into whatever houses you may be called in any professional capacity, you will go solely for the benefit of the sick, and will abstain from every voluntary act of mischief and wrong-doing. Whatever in connection with your professional practice you may see or hear in the lives of men which ought not to be revealed, you will not divulge, reckoning that all such things should be kept secret.

You do also declare it to be your desire that so long as you continue to keep this oath inviolate you may receive the protection of your Alma Mater; and should you trespass or violate this oath you do also authorize the Council of the University to revoke your degree.

You do so promise and affirm."

The dean of the University of Buffalo School of Medicine submitted the above form of oath, explaining that they administer the

Hippocratic oath to all senior medical students just before conferring the degree of Doctor of Medicine.

IV. Candidates for the Degree of Doctor of Medicine

PREAMBLE:

"In our profession it is a custom, established more than 2,000 years ago, that no one may be admitted to its honors, who has not first expressly taken upon himself its obligations. Now, therefore, in behalf of your elders, I call upon you to take, as we have taken before you, the oath which bears the name of Hippocrates. The language in which our predecessors first pronounced it is no longer spoken; the very gods whom they called to witness have been discarded, but still we can find no nobler words than the most ancient in which to hand down the traditions of our calling."

OATH:

"You do solemnly swear, each man by whatever he holds most sacred That you will be loyal to the Profession of Medicine and just and generous to its members

That you will lead your lives and practice your art in uprightness and honor That into whatsoever house you shall enter; it shall be for the good of the sick to the utmost of your power, you holding yourselves far aloof from wrong, from corruption, from the tempting of others to vice

That you will exercise your art solely for the cure of your patients, and will give no drug, perform no operation, for a criminal purpose, even if solicited; far less suggest it

That whatsoever you shall see or hear of the lives of men which is not fitting to be spoken, you will keep inviolably secret

These things do you swear? Let each man bow the head in sign of acquiescence

And now, if you will be true to this, your oath, may prosperity and good repute be ever yours; the opposite, if you shall prove yourselves forsworn."

The above form of oath was submitted by the deans of the following schools:

The dean of Columbia University College of Physicians and Surgeons, New York City, stated this oath is used for students at commencement exercises.

The dean of Cornell University Medical College, New York City, advised that this oath is used for senior class at commencement.²

The dean of Hahnemann Medical College and Hospital, Philadelphia, said this form of oath is publicly administered to the graduating class at commencement exercises.³

The dean of Jefferson Medical College, Philadelphia, advised this oath is administered to graduating class at commencement exercises.⁴

At Marquette University School of Medicine, Milwaukee, this oath is used for fifth year medical students before conferring the degree of Doctor of Medicine.

V. "You do solemnly swear by whatever you hold most sacred—

That you will be loyal to the profession of medicine and just and generous to its members.

That you will lead your life and practice your art in uprightness and honor.

2. Cornell administers the oath as above, but with the omission of the last paragraph.

3. Hahnemann administers the oath as above, but with the omission of the preamble.

4. Jefferson Medical College administers the oath as above, but with the omission of the preamble.

That into whatsoever home you shall enter it shall be for the good of the sick to the utmost of your power, and that you will hold yourself aloof from wrong, from corruption, and from the tempting of others to vice.

That you will exercise your art solely for the cure of your patients, and will give no drug and perform no operation for a criminal purpose, and far less, suggest such a thing.

That whatsoever you shall see or hear of the lives of men which is not fitting to be spoken, you will keep inviolably secret.

These things you do promise and in proportion as you are faithful to this oath, may happiness and good repute be ever yours—the opposite if you shall be forsworn."

The dean of the College of Medicine of Syracuse University, Syracuse, N. Y., submitted the above form, with the advice that it is used for senior medical students at the commencement exercises.⁵

VI.

SPONSIO ACADEMICA

In Facultate Medicinæ Universitatis Dalhousianæ.

(Translation)

I, who am presently about to have the degree of Doctor in the Art of Medicine conferred upon me, before Holy God, the searcher of hearts, promise that I will persevere in every duty of a grateful mind towards Dalhousie University up to the last breath of my life.

Then, furthermore, that I shall practise the Medical Art carefully, chastely, and uprightly, and as far as I shall be able, will faithfully attend to everything pertaining to the welfare of the sick.

Finally, those matters which have been seen or heard in the course of my practise about which one ought to maintain silence, I shall not make known to anyone without serious cause.

In this promise may the Deity assist me.

The dean of Dalhousie University, Halifax, Nova Scotia, enclosed the above form of oath, in the original Latin and translated as above, stating that they require a modification of the Hippocratic oath of all students before graduation. The Latin oath appears at the top of each sheet of the roll which is signed by successful candidates for the diploma.

VII. We, the graduates of the Detroit College of Medicine and Surgery, realizing as we do the importance of a united purpose on the part of the members of the profession, in support of its dignity and purity, do hereby declare that we enter upon the practice of our profession in good faith, with a determination that it shall be an honor to ourselves, and a true benefit to those placed in our charge.

We solemnly promise that the highest ultimate good to our patients shall be our constant rule of practice, and their secrets conveyed to us as medical advisers, be preserved with scrupulous care; that we shall hold in reverence the sacredness of foetal life, and discountenance as far as lies in our power, those practitioners who are engaged in its wanton destruction; that our professional brethren shall be entitled to our kind assistance and support, and that whether as counselors at the bedside or members of the same community, it shall be our endeavor to display towards them at all times a generous magnanimity.

The dean of the Detroit College of Medicine and Surgery enclosed the above oath with the explanation that the Hippocratic oath

5. This form of oath, it will be noted, is almost word for word the same as the form used by Columbia University, Cornell University, Hahnemann Medical College and Marquette University. However, in addition to the preamble being omitted, the last two paragraphs of the oath are combined and worded somewhat differently, therefore, the above form is being reprinted just as submitted by Syracuse.

is administered to the senior medical students as part of the commencement program.

VIII. We solemnly promise and declare that we will diligently, faithfully, honestly and virtuously conduct ourselves in the discharge of the several duties of our profession; that we will strive to preserve its purity and promote its advancement; that we will be kind and attentive to our patients and treat their diseases, so far as our ability may avail, in such manner as shall most certainly secure their safety and promote their speedy recovery; and that we will keep inviolate the innocent secrets of those persons and families to whom we may be called to render professional aid. We, moreover, solemnly declare that we will never, by any considerations, be induced to administer medicines or prescribe remedies for improper or pernicious purposes.

And we further agree, that, in case of failure on our part to observe these obligations, the authorities of this college, from whom we receive the right to exercise the healing art, may publicly revoke that right and declare our diploma null and void.

The dean of Long Island College Hospital submitted the above form of the Hippocratic oath, stating that it is used at graduating exercises, the oath being administered by the dean of the school during the exercises, just prior to the conferring of the degree.

IX. The following oath or affirmation will be exacted from the candidate before receiving his degree:

Ego, A——— B———, Doctoratus in Arte Medica titulo jam donandus, Sancto coram Deo cordium scrutatore, spondeo:—me in omnibus grati animi officiis erga hanc Universitatem ad extremum vitae halitum salutem persequaturum; tum porro artem medicam caute, caste et probe exercitaturum et, quod in me est, omnia ad aegrotorum corporum salutem conducentia cum fide procuraturum: quae denique inter medendum visa vel audita silere conveniat, non sine gravi causa vulgaturum. Ita praesens mihi spondenti adsit Numen.

The dean of McGill University, Montreal, enclosed the above Latin form of the oath, which is administered to the graduates at commencement, before the medical degree is conferred. This form has been in use at McGill for nearly 100 years.⁶

X. In full conscience of the duties and responsibilities which are to be mine in the career I have chosen, well-determined to do honor to my ALMA MATER and to the medical profession, I solemnly promise to fully conform the practice of my art with the rules of the strictest morals. I swear to keep secret all that pertains to the said practice.

I promise to maintain my life as a practitioner in full accord with the rules of professional ethics.

SO HELP ME GOD!

The above form of oath was submitted by the dean of the University of Montreal, Canada, with the information that it is used for graduation of senior medical students. He states, "As regards the Hippocratic oath, we have made up our minds that even with modifications, it does not answer to modern conditions. At the same time, we think there should be some sort of equivalence that would remind us of an old respectable custom, so we have adopted a formula of our own. I am sending you a translation, the original formula being in French."

XI.

SPONSIO MEDICINE

Question.—Do you promise that your life and conduct will always be worthy of the honour now about to be conferred upon you; that you will

cherish a generous loyalty to this University, and, as far as in you lies, endeavour to advance her interests? Do you promise that in the practice of your profession you will carefully, faithfully and honestly employ all possible means for the restoration of the sick, that you will guard the secrets of the homes you enter, and conform in all other respects to the rules and observances of the profession?

Answer.—We do.

The dean of Queen's University Medical Faculty, Kingston, Ontario, enclosed the above form of oath, stating, "I enclose a copy of the obligation which is taken by the medical graduates when they come up for laureation. This is a modification of the Hippocratic oath and has been in use now for the past twenty-five years. In lecturing to the final year students on 'The History of Medicine' it has been my custom to read to them the full Hippocratic oath, when discussing the works and writings of Hippocrates, but this oath in full has never been used in my time."

In conclusion the question naturally arises, should the Hippocratic oath, or one of its many modifications, be a part of the commencement exercises, before the degree of Doctor of Medicine be conferred upon the candidates?

The deans of the medical schools of the United States and Canada are the recipients of my sincere gratitude for the hearty cooperation they have shown by supplying the information contained in this paper.

6. The translation of the above oath corresponds with the translation of the oath submitted by Dalhousie University, Halifax, Nova Scotia.

Thirty-Ninth Annual Meeting

INDIANAPOLIS

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HEADQUARTERS: THE CLAYPOOL HOTEL

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DR. FRED C. ZAPFFE, Editor
25 East Washington Street
Chicago

STATE BOARD REQUIREMENTS

At the meeting of the Federation of State Medical Boards held recently in connection with the twenty-eighth annual Congress on Medical Education, Licensure and Hospitals, Dr. Harold Rypins, secretary of the Medical Examining Board of the New York State Education Department, read a paper on Duplication or Differentiation in Medical Supervision, in which he advocated that the prescriptions made by state licensing boards be removed and that this work be left for this Association to do. His suggestion received the support of other boards represented at the meetings. Briefly, he recommended:

The primary object of medical education and supervision is the protection of the public health.

A complete program of medical supervision divides itself into two major phases: (1) providing the public with competently qualified practitioners; and (2) eliminating the unqualified practitioners, charlatans and quacks.

The number of bodies now supervising medical education is impeding the progress of medical education.

The supervision of medical education should rest with The Association of American Medical Colleges, The Council on Medical Education, and various state departments of education.

The elimination of unqualified practitioners and quacks should rest with the various state licensing boards and the Federation.

The importance of the elimination of quacks justifies the development of proper machinery and support from the

public and medical profession comparable to that now given to medical education.

Differentiation and distribution of the educational and police aspects of medical supervision would be of benefit to the progress of medical education and to the protection of the public health.

These recommendations are in line with the discussion held at the Montreal meeting of this Association and which led to the appointment of a delegate to the Federation. If they are accepted by the Federation, a very great responsibility will be placed on medical schools, one which they, without doubt, will be well able and ready to shoulder. The advantages that will accrue to better medical teaching are many. Colleges will be in a position to rebuild their curricula on a more sound pedagogic basis. Sincerity of purpose is no longer being questioned by those charged with the duty of supervision of medical schools.

AN INNOVATION IN DONATIONS

Elsewhere in this issue is chronicled an item that an individual has had the broad vision to make a most liberal donation for "teaching and investigation" of a medical problem. Heretofore, endowments have been made to build and equip laboratories and hospitals for research, and, then, little, or nothing, was left for maintenance. But, now, an innovation has been introduced, one which is in the right direction and full of promise for the future. Mr. William C. Procter, of Cincinnati, has given the Children's Hospital of that city \$2,500,000 "for teaching and investigation!" The close affiliation between this hospital and the College of Medicine of the University of Cincinnati places the professor of pediatrics, Dr. A. Graeme Mitchell, in the position of carrying on the work that must be done to meet the terms of this gift. This, of itself, gives full assurance that only the highest type of work will be done and that every

wish that the donator of this large sum may have will be fulfilled. Medical educators and the medical profession, in general, will watch developments with much interest. The possibilities are enormous and far reaching. The results will, no doubt, be epoch making.

"VAGABONDING"

Verily, there is nothing new under the sun. In German universities it has been the custom of students to attend classes "according to their own sweet will." Popular teachers always have a large student attendance on their lectures and demonstrations. There is no university regulation that prescribes whose classes should be attended. A teacher with the lowest rank in the faculty may have the largest student attendance. The final test of proficiency in any subject is the examination, which is taken whenever the student is ready for a test.

Now, word is received that a similar practice, in principle, is in vogue among the students of Harvard University. It has been termed "vagabonding," and refers to attendance on lectures not included in the student's regular courses. Professors are said to encourage it, and every morning the *Crimson* prints a list of lectures of the day that are likely to be of general interest.

Perhaps some medical school may wish to introduce such a plan into its curriculum as a stimulus to its teachers and by way of experiment in medical education. It would represent a wide excursion into the field of election about which much is being said but little done. A near approach is the method employed in the University of Wisconsin Medical School in the department of anatomy. The student is assigned his task and does it when and how he chooses, presenting himself for examination whenever he feels he is ready for it. "Vagabonding" should receive serious thought by medical educators.

OLDEST MEDICAL BOOK

The oldest book of medicine, the Edwin Smith papyrus, has been translated by Professor James H. Breasted, director of the Oriental Institute of the University of Chicago. This papyrus was found at Luxor, Egypt, and dates back to the seventeenth century B. C. The original is a roll about 15 feet long, written on both sides, seventeen columns on the front and five columns on the back. The columns are between 11 and 12 inches in height and up to 12 inches wide. The translation will be a most interesting addition to any medical library.

COMMISSION ON MEDICAL EDUCATION

Announcement has been made of the appointment of the following committees:

Committee 1: Premedical Training.—Samuel P. Capen, Chairman, chancellor University of Buffalo; Clarence C. Little, president University of Michigan; Henry G. Gale, University of Chicago; Leon B. Richardson, Dartmouth College; Walter A. Jessup, president University of Iowa.

Committee 2: Medical Sciences.—Lafayette B. Mendel, Chairman, Yale University; Charles R. Stockard, Cornell University Medical School; Hans Zinsser, Harvard Medical School; George H. Whipple, University of Rochester Medical School; John J. R. Macleod, University of Toronto.

Committee 3: Clinical Medicine.—David L. Edsall, Chairman, Harvard Medical School; George Blumer, Yale Medical School; Charles P. Emerson, Indiana University Medical School; George E. deSchweinitz, University of Pennsylvania; Elliott Cutler, Western Reserve Medical School; Benjamin P. Watson, Columbia University Medical School; Hugh Cabot, University of Michigan Medical School; Willard C. Rappleye, director of study, is secretary of each committee.

College News

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE.—Mr. William Cooper Procter, the president of the Board of Trustees of the Children's Hospital of Cincinnati, has announced the gift of \$2,500,000 to that institution to be expended mainly for teaching and investigation. It is planned that approximately \$500,000 will be spent in the development of a building housing research laboratories and necessary adjunct thereto, and in further development of the outpatient clinic. The Children's Hospital of Cincinnati is very closely affiliated with the College of Medicine of the University of Cincinnati through its pediatric department—the professor of pediatrics in the College of Medicine being the chief of staff and medical director of the Children's Hospital. The Children's Hospital has been pronounced by all those who have seen it as unquestionably the finest institution of its type which has yet been erected. The fact that this building is entirely paid for and already has very heavy endowment allows for the finest type of care for patients and also permits the expenditure of the sum previously mentioned for purposes not directly concerned with the care of patients. This magnificent gift of Mr. Procter's is of special significance in that it not only permits a tremendous expansion of the type of work for children already in existence in Cincinnati, but also that it is to be employed largely in the pursuance of investigation along several lines such as clinical, laboratory, preventive and social service work. The pediatric department does not confine its activities to the care of patients and the teaching of undergraduate and graduate medical students, but, through its affiliation with national and local organizations, is in very close touch with preventive pediatric work and problems connected with

the health of the city. Under its direction, or in association with it, are other hospitals and institutions concerned in the care of children and in the prevention of disease. The affiliations are such that it is possible to give undergraduate and graduate instruction in all types of pediatric work. Among its most important connections is that with the Babies' Milk Fund Association of which Dr. B. K. Rachford is medical director. The policy of the pediatric department has been, and will be, the coordination of a voluntary, part-time and full-time staff in teaching, investigation and care of patients.

The sixty-four members of the senior class have each taken out a twenty-year endowment life insurance policy in favor of the college. The matured policies will be turned over to the college at a class meeting in 1953.

MCGILL UNIVERSITY FACULTY OF MEDICINE.—Professor J. B. Collip, co-discoverer of insulin and at present professor of biochemistry in the University of Alberta, has been appointed to the chair of biochemistry at McGill University in place of Professor A. B. Macallum, who is retiring at the end of this session. Professor Collip, whose work on diabetes was followed shortly after by his epoch-making study of the parathyroid gland, brings to McGill an added prestige and stimulus which will be far-reaching in its results. There will be a considerable addition to the staff of the Biochemical Department as a result of this appointment, and while the University regretfully parts with Prof. Macallum, it is generally felt that a very real successor has been named. The Department of Industrial Medicine has been inaugurated during the present session. The Industrial Clinic, formed at the Montreal General Hospital in connection with the Medical School, has been initiated, and it will be the center for the training of physicians in industrial medicine. A

course of lectures will be given by the director of this department, Dr. F. G. Pedley, whose duties will be intimately connected with the department of Public Health and Preventive Medicine.

STANFORD UNIVERSITY MEDICAL SCHOOL.—The next series of Lane Medical Lectures will be given in October, 1928, by Professor F. d'Herelle, Directeur du Service Bacteriologique du Conseil Sanitaire, Maritime et Quarantenaire at Alexandria, Egypt. The program has not been decided on but the lectures will probably cover filterable viruses and the bacteriophage. Dr. Walter Straub, professor of pharmacology in the University of Munich, will deliver the Lane Lectures for 1929.

The following Popular Medical Lectures have been arranged to be delivered on alternate Friday evenings during January, February and March, 1928: Jan. 13, "Psycho-Analysis," by Dr. James L. Whitney; Jan. 27, "Infantile Paralysis," by Dr. Russell V. Lee; Feb. 10, "Cults, Quacks and Cures," by Dr. Edgar L. Gilcreest; Feb. 24, "Chinese Medicine," by Dr. Emmet Rixford; March 9, "Protection against Tuberculosis" by Dr. Frederick Eberson; March 23, "Prevention of Heart Disease," by Dr. William Dock. This is the forty-sixth series of Popular Medical Lectures given by this institution.

By the will of Dr. Morris Herzstein, one of the prominent physicians of San Francisco, Stanford University is to receive \$100,000 for a chair in biology.

December 3, 1927, Dr. T. Wingate Todd, Professor of Anatomy of Western Reserve University Medical School, delivered a lecture on "The Study of Human Alimentary Movements."

December 7, 1927, Dr. Corneille Heymans, Extraordinary Professor of Pharmacology of the Faculty of Medicine of the University of Ghent spoke on "Contributions to the Physiology and

Pharmacology of the Cardio-Inhibitory and Respiratory Centers."

The Medical School has received \$500.00 from Mr. Edward M. Mills for free beds for children; \$1,000 from Miss Helen E. Cowell for physiotherapy treatments for indigent deserving patients; \$100.00 from a grateful patient to be used for surgical research; \$610.69 from the estate of Mrs. Ann Whitney Sperry, to be used for the benefit of Protestant and Catholic crippled or orphaned children of San Francisco; \$2,500 from Mr. Roy N. Bishop and \$500 from Mr. George T. Cameron as contributions to the Wellington Gregg Fund for the study of nephritis.

Pediatrics, which so far has been a division of the department of internal medicine, has been made a full department in the medical school.

HARVARD MEDICAL SCHOOL.—The first dormitory to be erected at a medical school in this country, as a part of the school and for medical students only, was recently dedicated at Harvard University. The structure includes several buildings and has a central court yard, large enough for tennis or hockey, which when the building is enlarged as it may be to accommodate 400 students, will be entirely enclosed. The bedrooms are in pairs, one having a fireplace; two students can have their beds in one room and their desks in the other, or they can close the connecting door and live each man by himself; in the corners of the buildings are more elaborate suites with separate studies and bedrooms. There is a lobby in the wing nearest the medical school and to the right a large dining hall. The culinary department is said to be "about perfect." A dining room on the second floor is connected with the kitchen, so that small society dinners can be served with ease. There is a large living room to the left of the lobby with a fireplace and piano. In the basement of the other wing is a

gymnasium large enough for basket ball and above it five squash courts. The students regard the dormitory as their "club house" as well as home. Harold S. Vanderbilt contributed more than half of the cost, and in his honor the building was named Vanderbilt Hall.

The late Wm. A. Purrington bequeathed \$150,000 to this school for "research work in the field of medicine, with special reference to the application of medical knowledge to the department of dentistry."

Faculty appointments: Francis W. Palfrey, instructor in medicine; Granville A. Bennett, instructor in pathology; Robert W. Buck, Wyman Richardson and James H. Townsend, assistants in medicine; Eliot Hubbard, Jr., assistant in pediatrics; Wm. E. Ladd, assistant professor of surgery; Robert M. Green, assistant professor of applied anatomy and Edw. P. Richardson, John Homans, professor of surgery.

JEFFERSON MEDICAL COLLEGE.—The college will share equally with the University of Pennsylvania the bulk of the estate of Mr. Frank Thorne Patterson on the death of his widow. It is estimated that these institutions will divide more than \$2,000,000. A piece of property adjacent to the present buildings has been purchased for future development.

CANADIAN MEDICAL ASSOCIATION.—The Sun Life Insurance Company has granted \$30,000 for the third time to continue the extramural postgraduate instruction which the association has carried on for two years. More than 400 instructors have assisted in this work by giving clinics, demonstrations and addresses before an aggregate attendance of 35,000 physicians in every province of the dominion and in Newfoundland.

THE UNIVERSITY OF FLORENCE, Italy.—A special course in clinical pediatrics leading up to a diploma as a specialist

in pediatrics has been announced. The course extends over a period of two years. Those enrolled will pursue the university course in clinical pediatrics. At the end of the first year, they will be given an examination to determine the progress made, and at the close of the second year, a final examination, consisting of a discussion of a written thesis and of a clinical test. The course is open only to graduates in medicine and surgery. The annual tuition is 900 liras (about \$54); laboratory fees, 200 liras (\$12). Inquiries should be sent to the Segretaria della Facolta di Medicina, Via degli Alfani 33, Florence, Italy.

UNIVERSITY OF MICHIGAN.—The Medical School now requires personal interviews with students before accepting them for admission. The new plan places the duty of selecting students in the hands of a committee comprising the dean and two members of the faculty, with the president of the university in consultation. Applications for admission must be filed before May 1. The committee will summon each applicant academically qualified for a personal interview between July 1 and July 15, while applicants living at a distance may appear before representatives of the school at centers near their homes. The interviews, which will be similar in all cases, will be designed to show the applicant's fitness to become a physician and his adaptability to caring for the sick.

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL.—The decision has been reached to bring all departments of the school together in San Francisco on the same site as the University Hospital and the Hooper Foundation—the so-called Parnassus Heights. This will necessitate moving the departments of pharmacology, biochemistry, bacteriology and anatomy from Berkeley to San Francisco.

Dr. Langley Porter, recently appointed dean, has also been appointed professor of medicine, and Dr. Lionel S. Schmitt, who has been the acting dean for several years, has been appointed associate dean and associate professor of administrative medicine.

Among other scholarships available at this school is a Sheffield Sanborn scholarship of \$325 for a student in the school of medicine. Gifts received: \$450 for a study of the relation of the intestinal flora to disease; of \$100 in support of the Callander Surgical and Topographic Anatomy Fund; of \$200 for the use of the Hooper Foundation.

UNIVERSITY OF PENNSYLVANIA GRADUATE SCHOOL OF MEDICINE.—A member of the faculty, Dr. Ellice McDonald, has received a gift of \$50,000 to continue his researches into the causation of cancer. It is planned to study the physicochemical aspects of cancer. Three scholarships in research are open for workers familiar with the colloidal aspects of blood.

YALE MEDICAL SCHOOL.—The addition to the Anthony N. Brady Memorial Laboratory is under way. The new building will be connected with the New Haven Hospital by a covered archway, and together with the existing wing of the Brady Memorial Laboratory will have a total capacity of 2,000,000 cubic feet. The Yale School of Nursing will occupy the first floor of the Brady laboratory; the department of pathology will occupy the first floor of the new wing on Cedar Street, its work having expanded rapidly through cooperation with physicians and hospitals throughout the state. The department of public health will occupy the whole of the second floor of the Cedar Street wing; bacteriologic work associated with medicine and agriculture will occupy the third floor of both the old and the new wings, the staff in pathology and bacteriology using the fourth floor of Cedar Street wing as a dormi-

tory. The third wing of the building, a story higher than the rest, will accommodate activities more closely associated with the hospital than with the school of medicine, the ground floor being for genito-urinary surgery, orthopedics and physical therapy. On the next floor will be offices for members of the staff on surgery, obstetrics and gynecology, with reception rooms and a suite for prenatal service; adjoining the prenatal suite will be living quarters for personnel engaged in outpatient obstetric service. On this floor will be a suite of rooms for the emergency and accident service, connected directly by elevator with the operating suite on the top floor of the old building where there will be facilities for eight major operations conducted simultaneously. Two floors will be equipped as laboratories for the departments of surgery, obstetrics and gynecology. The General Education Board of the Rockefeller Foundation will meet the entire cost of the building, namely, \$1,250,000.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.—Dr. Carolina S. R. Engelhardt has given \$5,000 to endow a lectureship in the college. A campaign is being conducted to raise \$1,500,000 for new buildings to be erected at the Falls of the Schuylkill. It is planned ultimately to establish a medical center for women students, teachers, research workers and practitioners.

JOHNS HOPKINS UNIVERSITY MEDICAL SCHOOL.—Special facilities have been provided for the study of causes of deafness with the ultimate purpose of including in the study all diseases of the ear. The director is Dr. Samuel J. Crowe, clinical professor of laryngology and otology. The General Education Board, the Dupont family, and others with defray the expense of the study.

The Chemical Foundation has given \$195,000 to Johns Hopkins University School of Hygiene and Public Health

for an exhaustive study of the origin, nature and possible cure of the common cold. The fund is to be known as the John J. Abel Fund for Research on the Common Cold, in honor of the present incumbent of the chair of pharmacology at Johns Hopkins University School of Medicine. It will provide \$25,000 for the first year of the study, \$35,000 for the second year, and \$45,000 for each of the third, fourth and fifth years. The research is to be administered by a faculty committee composed of Drs. Lewis H. Weed, dean and professor of anatomy of the school of medicine, chairman; William H. Howell, director, school of hygiene and public health; Warfield T. Longcope, professor of medicine; Carroll G. Bull, professor of immunology, school of hygiene and public health; Wade H. Frost, professor and head of the department of epidemiology, school of hygiene and public health; Samuel J. Crowe, clinical professor of laryngology and otology, and Lawrence H. Baker, Ph.D., executive secretary of the school of medicine.

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Faculty appointments: Thurman B. Rice, associate professor of bacteriology and public health; Frank Forry, associate professor of pathology; Willis D. Gatch, head of the department of surgery, including gynecology and orthopedic surgery; William H. Kennedy, associate professor in medicine (radium therapy); Henry O. Mertz, associate professor in genito-urinary surgery; Gerald W. Gustafson, assistant in obstetrics; Edwin L. Libbert, assistant in medicine; Walter P. Morton, assistant in genito-urinary surgery; John M. Taylor and Walter B. Tinsley, assistants in dermatology and syphilology; George W. Wood, assistant in gynecology; Joseph J. Littell, Edmund Ochos Alvis, Bert E. Ellis, Guy W. Seaton and Henry W. Irwin, assistants in rhinology, otology and laryngology.

UNIVERSITY OF PENNSYLVANIA.—The late Mr. E. R. Johnson, formerly president of the Victor Talking Machine Company, bequeathed \$800,000 to the university for the creation of the Eldridge R. Johnson Foundation for Research in Medical Physics. It is specified that the cost of buildings and equipment is not to exceed \$200,000. Part of the income from the remainder is to be used to further the study and development of physical methods in the investigation and cure of disease.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE.—Faculty appointments: Reverend Alphonse M. Schwitalla, S.J., Ph.D., dean, to succeed the late Dr. Hanau W. Loeb; Dr. Don R. Joseph, M.S., M.D., associate dean.

The new medical school building is completed and in use for teaching in preclinical subjects.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.—Faculty appointments: Dr. Edw. S. Ryerson, professor of orthopedic surgery; Dr. G. L. Foster, of the Medical School of the University of California, associate professor of biochemistry; Dr. Hugh McKenna, associate professor of surgery.

LONG ISLAND COLLEGE HOSPITAL.—The curriculum has been recast with the purpose of training the student to correlate the basic sciences with their practical application. Therefore, there is now given in the first year class a weekly clinic in medicine or surgery and for the second year class two such clinics. The third and fourth years, though largely clinical, contain courses in such fundamental sciences as anatomy, bacteriology and pathology.

The first and second year clinics are conducted by the heads of the clinical departments in conjunction with the professors of the fundamental sciences. For the first year clinics, ward or dispen-

sary cases are selected which illustrate some anatomical, physiological and chemical principle recently studied in the laboratory. The condition is then discussed by both the clinician and the head of the fundamental science concerned.

The second year clinics deal with the bacteriological or pathological phases of disease process, and are demonstrated by the professors of those respective sciences in conjunction with the medical or surgical chief.

The third year instead of being largely spent in the lecture hall, as of old, is now devoted almost entirely to dispensary instruction to small groups. Sections of about six students work for two hour periods in the general or special clinics. Most of this time is spent in medicine and surgery where the fundamentals of ambulatory diseases and minor surgery are taught by the "case method." The rarer diseases are discussed in connection with differential diagnosis.

The greatest innovation, however, is in the fourth year teaching. Practically the entire year is spent in clinical clerkship in the Hospital. For ten uninterrupted weeks the student is a clerk in medicine, remaining in one Hospital daily from nine to five o'clock. The same period of time is spent in surgery. Five weeks are similarly devoted to obstetrics and gynecology and five weeks to pediatrics. Cases are assigned to each student and the history he takes is incorporated with the Hospital record. This, of course, is carefully gone over by the house and attending staffs. He makes physical and laboratory examinations and follows the patient throughout the hospital stay. He is present at all specialty consultations on that patient and in this way receives intimate instruction from the heads of the special departments. Clinical-pathological, clinical-bacteriological and clinical-radiological conferences are held each week. Ward

rounds and bedside demonstrations make up the rest of the teaching. Time is allowed for reading of assigned topics in the current literature.

While a surgical clerk, each student is present at the operation on his case and observes or assists in subsequent dressings. In conjunction with the department of pathology he makes gross and microscopic studies of tissues removed. Members of the department of anatomy and surgery give cadaver courses in surgical anatomy and surgical technique. During the five weeks of obstetrical clerkship his duties are similar to the foregoing. He makes ante partum examinations and under supervision delivers assigned cases which are followed up by post partum visits. For part of his time he lives in residence. During his pediatric stay his work is similar to that in medicine, but he spends two afternoons a week at Kingston Avenue Hospital where the diagnosis and treatment of contagious disease are demonstrated. The last three weeks of the year are left open for elective work. The only time that the class meets as a whole is for psychiatric clinics which are given Saturday afternoons at the Brooklyn State Hospital.

Long Island College Hospital has received \$100,000 for the Hoagland Laboratory by the will of the late Miss Ella J. Hoagland whose father, the late Dr. Cornelius N. Hoagland, founded this laboratory.

UNIVERSITY OF CHICAGO.—Mr. and Mrs. Albert D. Lasker have given an endowment fund of \$1,000,000 for medical research on the prevention and cure of the degenerative diseases of persons of middle age. The institution is to be known as the Lasker Foundation for Medical Research.

Dr. Peter Kronfeld, of Vienna, assistant in Josef Muller's eye clinic, has been appointed assistant professor of

ophthalmology. This is the first research appointment made under the Kuppenheimer Foundation.

ABRAHAM FLEXNER LECTURESHIP AT VANDERBILT.—Bernard Flexner, New York, has set aside securities, the income from which will yield \$2,500 a year, to be held in trust for the creation of a lectureship at Vanderbilt University School of Medicine, Nashville, in honor of his brother, Abraham. Mr. Flexner is also prepared to provide \$5,000 to enable Vanderbilt to inaugurate the series during the academic year 1928-1929. The gift was made to perpetuate the association of his brother with the recent organization of the school of medicine of Vanderbilt University, and to stimulate education in that part of the country.

COLUMBIA UNIVERSITY.—The alumni of the College of Physicians and Surgeons have donated \$128,000 to found a professorship in pathology to be known as the Francis Delafield professorship in honor of the founder of the pathological laboratory. It is the intention of the donors to increase this amount to \$200,000.

BILL TO PREVENT DIPLOMA MILLS.—Representative Gibson has introduced a bill in the House of Representatives which would prohibit any institution in the District of Columbia from conferring any degree except by license from the board of education. The board of education would be prohibited from granting any such license until it has established evidence on four points: (1) that the trustees or directors of the institution are persons of good repute and qualified to conduct an institution of learning; (2) that a degree shall be granted only after such a period of residence and quantity of work as is usually required by reputable institutions; (3) that applicants for degrees possess the usual high school qualification, and (4)

that the faculty is of reasonable number and properly qualified, and that the school have suitable laboratories, class rooms and library equipment.

MEDICAL EDUCATION IN THE NEAR EAST.—The Near East College Association has received \$1,000,000 from the Rockefeller Foundation to be devoted to medical work at the American University of Beirut. One fourth of this sum is for buildings and equipment, and may be appropriated at any time by the executive committee of the association; the remainder is for endowment for the teaching of medical science. The Near East College Association has announced the opening of a campaign to raise \$15,000,000 for the six American colleges in the Near East. Among other gifts received was \$1,000,000 from the estate of Dr. Charles Hall, who died in 1914, having made a fortune through his process for manufacturing aluminum. American colleges in the Near East College Association are:

Robert College at Constantinople, Turkey; American University of Beirut, Syria; Constantinople Woman's College, Turkey; International College of Smyrna, Turkey; Athens College, Athens, Greece; Sofia American Schools, Bulgaria.

FOREIGN STUDENTS IN THE UNITED STATES.—About 4,000 students from the Philippines, it is estimated, are attending schools and colleges in continental United States. More than 1,000 foreign students are attending higher educational institutions in Chicago, according to the advisor on foreign students of the University of Chicago.

OLIVER MEMORIAL RESEARCH FOUNDATION.—Funds have been given to St. Margaret Memorial Hospital, Pittsburgh, by Mrs. John C. Oliver, Seivickley, Pa., to establish a laboratory for clinical and biological research to be known as the John C. Oliver Memorial Research

Foundation. A full time biochemist will be in charge. Any general medical problem may be made the subject of research by any member of the hospital staff.

FELLOWSHIPS FOR TRAINING ORTHOPEDIC SURGEONS.—The New York Orthopedic Dispensary and Hospital is the recipient of more than \$1,000,000 from the estate of the late Mrs. John Innes Kane as an endowment to found the Annie C. Kane fellowships. The income from the fund will provide eight fellowships of an annual value of from \$4,000 to \$9,000, which will be awarded to selected young surgeons who show promise of development so that they may continue training in the hospital undisturbed by any consideration other than those pertaining directly to the care of the sick.

CHAIR OF ANTHROPOLOGY.—At the last meeting of the American Association for the Advancement of Science, Dr. Ales Hrdlicka, of the U. S. National Museum, advocated the establishment of a chair of anthropology in every medical school.

GRADUATE MEDICAL EDUCATION.—The New York Academy of Medicine recently devoted an evening to the discussion of graduate medical education. The speakers were Dr. Louis B. Wilson, Mayo Foundation; Dr. Ludwig Kast, New York, and Dr. John E. Jennings, Brooklyn.

OCHSNER MEMORIAL FOUNDATION.—The American College of Surgeons has established this foundation for clinical research by a grant of \$100,000. It is hoped to secure an additional \$900,000 from other sources.

TEACHING IN MEDICAL RADIOLOGY.—The Executive Committee of the Second International Congress to be held in Stockholm, Sweden, July 23-27, 1928, has resolved to take up instruction and

training in medical radiology as a main topic for discussion. These papers will be published in a separate volume for the benefits of teachers in this subject in all parts of the world.

THE BUDAPEST CONGRESS.—The Fifth International Medical Congress for Industrial Accidents and Occupational Diseases is to be held in Budapest during September, 1928. The Executive Committee consists of the following: President, Dr. Tibor de Verebely; vice-president, Dr. William de Friedrich; secretary-general, Dr. George Gortvay. The National Committee for the United States consists of the following: Dr. Volney S. Cheney, Chicago; Dr. R. W. Corwin, Pueblo; Dr. Eugene L. Fisk, New York; Dr. Otto P. Geier, Cincinnati; Dr. Leonard Greenburg, New Haven; Dr. George M. Kober, Washington, D. C.; Dr. W. J. McConnell, Philadelphia; Dr. Lloyd Noland, Birmingham, Dr. Francis D. Patterson, Philadelphia; Dr. George M. Price, New York; Dr. Frank L. Rector, Chicago; Dr. Wm. A. Sawyer, Rochester; Dr. Henry F. Smyth, Philadelphia; Dr. C. A. E. Winslow, New Haven; and Dr. Emery R. Hayhurst, Columbus, chairman.

Addresses and lectures are wanted from American physicians, dentists, and other specialists in the field. Such are requested to get in touch with the Chairman for the National Committee for the United States, Dr. Emery R. Hayhurst, Hamilton Hall, Ohio State University, Columbus, Ohio. General invitation is also extended to attend the Congress which will be arranged so as to coordinate with the "Deutscher Naturforscher Tag" to be held in Hamburg, and the "Orthopadenkongress" to be held at Prague during September, 1928.

HOSPITAL CONVENTION.—The thirteenth annual convention of the Catholic Hospital Association of the United States

and Canada and the second annual Hospital Clinical Congress of North America will be held in Cincinnati, Ohio, June 18 to 22, 1928. The fourth annual convention of the International Guild of Nurses will be held at the same time, at night meetings.

This convention and congress will comprise general scientific meetings, special clinics or demonstrations of hospital departments, and three hundred special commercial and educational exhibits. Outstanding authorities in medicine, surgery, pathology, nursing, dietetics and hospital administration, architecture and engineering will lecture and demonstrate in specially planned clinics representing the various departments of the modern hospital. All persons interested in medical and hospital service are cordially invited to attend. Further information may be obtained from John R. Hughes, M. D., dean of the college of Hospital Administration, Marquette University, Milwaukee, Wisconsin, who is general chairman of the convention and congress.

ASSOCIATION OF AMERICAN TEACHERS OF THE DISEASES OF CHILDREN.—The annual meeting of this association will be held in Minneapolis at the Hotel Curtis, June 12, 10:30 a. m. Program: Presidential Address, J. P. Crozer Griffith, Philadelphia; Improvement of Medical Instruction, M. E. Haggerty, Minneapolis; History of the Association, Samuel W. Kelley, Cleveland; Teaching of Diabetes in Children, Elliott P. Joslin, Boston; Training of the Teacher, Isaac A. Abt, Chicago.

MCGILL UNIVERSITY FACULTY OF MEDICINE—Dr. Wilder Penfield, associate professor of neurological surgery in Columbia University, has been appointed clinical professor of neurological surgery at McGill University and neurological surgeon to the Royal Victoria Hospital,

Montreal. He will also be attached for service to the Montreal General Hospital. Dr. Penfield was a Rhodes Scholar, has a B.A. degree from Oxford and M.D. from Johns Hopkins; saw active service in surgery during the war with the American Red Cross Hospital; was subsequently resident surgeon of the Peter Bent Brigham Hospital, Boston. During 1919-1920 he studied under Professor Sherrington at Oxford on the "Physiology of the Nervous System." He was next appointed Beit Memorial Fellow at the National Hospital, Queen's Square, London, after which he returned to New York as Associate Attending Surgeon of the Presbyterian Hospital. He has contributed widely to the literature of neuropathology, and is one of the outstanding authorities on this Continent. Professor B. T. Babkin has been appointed research professor of physiology in McGill University. While born in Russia and a graduate of St. Petersburg, he obtained his doctorate in science in England. For eleven years he was assistant to Professor Pavlov, the distinguished Russian physiologist, after which he occupied several important professorial positions in physiology up to the time of the Bolshevik upset. He was then attached to the service of Professor Starling in University College, London, and in 1924 became professor of physiology in Dalhousie University.

PERSONALS

Dr. Wm. T. Porter, professor of comparative physiology in the Harvard Medical School, has been made professor emeritus.

Dr. E. L. Sevringhaus, formerly associate professor of physiological chemistry in the University of Wisconsin Medical School, has been appointed associate professor of medicine.

Dr. Leslie Hellerman, of the University of Chicago, received an appointment in the department of physiological chem-

istry of the Johns Hopkins University Medical School.

Dr. Floyd S. Daft has been appointed an assistant in the School of Public Health of Harvard University.

Dr. E. L. Walker, professor of tropical medicine in the University of California, has gone to Honolulu to continue his study of the isolation of the leprosy bacillus at the Kahlili Leprosy Investigation Station.

Dr. Andrew Watson Sellards, assistant professor of tropical medicine in Harvard Medical School, is in West Africa studying yellow fever and other tropical diseases.

Dr. Julius Wagner Jauregg, professor of neuropathology at the University of Vienna, was awarded the Nobel prize in medicine for 1927 for his discovery of the malaria treatment of paresis.

Dr. Elliott C. Cutler, professor of surgery in the medical school of Western Reserve University, Cleveland, was recently elected a corresponding member of the Royal Academy of Medicine, Rome.

Dr. Chevalier Jackson, professor of bronchoscopy and esophagoscopy in Jefferson Medical College, was awarded the Cross of a Chevalier of the Legion of Honor of France for his "distinguished contribution to the science of medicine."

Dr. Floyd DeEds, assistant professor of pharmacology in Hanford University Medical School, has resigned to become pharmacologist at the U. S. Hygienic laboratory.

Dr. Guy W. Clark, formerly assistant professor of pharmacology in the University of California Medical School, is now with the Lederle Antitoxin laboratories.

Dr. D. J. Davis, dean and professor of pathology of the College of Medicine of the University of Illinois, has returned from a study tour in Europe, at

the Pasteur Institute. He also visited the medical clinics in Vienna, Paris, London, Edinburgh and elsewhere.

Dr. Charles Hunter has been appointed professor of medicine in the Faculty of Medicine, University of Manitoba, to succeed Dr. E. W. Montgomery, who resigned to accept the post of minister of public health for the Province of Manitoba.

Dr. Frank B. Mallory has been appointed professor of pathology in the Harvard Medical School.

Dr. E. David Friedman is now professor of neurology and head of the department at the University and Bellevue Hospital Medical College.

Dr. Laurence Selling has been appointed clinical professor of medicine and head of the department of medicine in the University of Oregon Medical School.

The King of Spain has conferred the grand cross of the Order of Civil Merit on Dr. Aldo Castellani, professor of tropical medicine in Tulane University School of Medicine.

The Woman's Medical College of Pennsylvania will name a chair in surgery in honor of Dr. William W. Keen, one time professor of surgery in the college. The sum of \$100,000 will be raised to endow the college.

Drs. M. A. Blankenhorn and Roy W. Scott, associate professors of medicine at Western Reserve University, have been promoted to the rank of clinical professor.

Dr. Maurice H. Rees, dean University of Colorado School of Medicine, was appointed acting professional director of the Colorado General Hospital.

Dr. Cyrus Crissy Sturgis, professor of medicine in the University of Michigan and director of its research hospital, has accepted the chair of medicine in Western Reserve University.

Abstracts of Current Literature

OPPORTUNITY OF THE DISPENSARY

In many instances, the location of dispensaries affords no possibility for the development of teaching, but many times the opportunity of teaching medical students, postgraduate workers or nurses, is ignored merely through lack of interest. It is indeed very rare to observe much enthusiasm for teaching in the dispensary, even in hospitals associated with the leading medical schools, as instruction in the clinical branches is centered about the hospital wards. On reflection, it appears to me that most medical schools fail to teach the important aspects of medicine which are frequently encountered in dispensary patients, such as minor ailments, the earliest manifestation of disease, and that large group of patients, suffering from some form of functional disorders. In other words, we do not teach the type of medicine which consumes a very large part of a general practitioner's time. A large proportion of patients who are admitted to the wards of the hospital show the end picture of an advanced condition and in many of these the diagnosis is easily recognized by an inexperienced clinician. For example, it is interesting to note the ease with which a fourth year medical student will deduce the correct diagnosis from a short summary of the history, physical examination and laboratory findings, in a patient with a well marked condition. But had a student encountered such a patient in the early stages of this disease, and been told to elicit a history and ascertain the abnormal physical findings, and following this, to arrive at a diagnosis or to plan a course of study which would assist in the diagnosis, then his experience

would be apparent. It is this important type of training which the medical schools have failed to emphasize, as dispensary teaching has not received the proper attention in this country. Dispensary teaching might be conducted according to a variety of methods as follows: 1. Teaching physical diagnosis to small groups of second or third year students. 2. Study and care of the patients by third or fourth year students who act in the same capacity as the clinical clerks on the medical wards. 3. Offering elective courses in various diseases which are grouped in special sections of the dispensary, such as heart disease, nephritis, diabetes, thyroid diseases, and many others. 4. The presentation of a one hour clinic, once a week throughout the year, to third or fourth year students, or both, using dispensary material exclusively.—STURGIS, CYRUS C.: *Boston M. & S. J.*, 197:836, 1927.

TEACHING CLINICAL MEDICINE

The student of the fourth year is assigned in the department of medicine for a period of four months, to work in the medical wards of the Philippine General Hospital for six days a week, two consecutive hours daily. He writes the clinical history of the patients assigned to him, makes the physical and laboratory examinations on them, and gives his diagnosis after due consideration of all his findings. In the fifth year he is again assigned for four months in the same department, and works in the same wards, but this time as an intern, devoting his whole time in medicine, doing similar work as in the previous year, with a better opportunity, however, to study and observe his patients, for he has more time to be in contact with them. The student, having no more lectures to attend, has ample opportunity to follow the course of the disease and the complications that may arise. Wheth-

er as a clinical clerk or as an intern, his work is carefully checked and supervised by the members of the medical staff, who make their daily rounds and discuss the patients assigned to each student. The result of this change in the curriculum was the simplification of the didactic lectures in the clinical subjects in the fourth year and the suppression of such lectures in the fifth year. One important part of the work of the student worth special mention is the writing of diagnoses. Each diagnosis given in the medical service must be briefly discussed in writing by the student, giving the bases on which the diagnosis is made, including the differential diagnosis. This, to our mind, is the most instructive part of the work of the student, as in this way he is encouraged to participate in his own medical education by being compelled to make a systematic reading of every new clinical entity he may come across in his clinical work; at the same time, he is also trained to correlate in an orderly manner his clinical findings, which is a good method by which the student may learn from the very beginning, and thus develop his ability to make correct diagnoses. The accomplishment of this plan of teaching was only made possible, in the first place, by having a hospital like the Philippine General Hospital, the free wards of which are under the technical control of the corresponding clinical departments of the College of Medicine, University of the Philippines. In the second place, the Philippine General Hospital is large enough to provide the necessary clinical material in the different branches, to be used by the students in their clinical studies.—A. G. SISON AND A. B. M. SISON: *Philippine Islands Med. Assoc. Jour.*, 7:218 (June) 1927.

TEACHING OF GYNECOLOGY

Assuming that ninety hours in the third and fourth years are to be devoted

to the teaching of gynecology, the following program is suggested. 1. Ten hours of didactic lectures, dealing in a very general way with the scope of gynecology and the general problems involved. These lectures should come in the third year, and preferably in the first term; at any rate, as far as possible they should be given before the student begins his clinical work. 2. Forty-eight hours of clinical teaching of small sections in the outpatient department, divided into twelve half-day exercises of four hours each. Three hours at least of each exercise should be spent in actual contact with patients. The other hour might be devoted to informal conferences on subjects suggested by the clinical material at hand, to the study of gross pathologic specimens, to the occasional demonstration of some special method of investigation in the clinic, and, rarely, to the witnessing of an operation on a case previously seen by the students. This outpatient work might come in the third or fourth year, but preferably after the lectures have been given. 3. Thirty-two hours of case teaching. This should come in the fourth year, after the students have done their outpatient work. The case-teaching exercise can be handled with a fairly large section of students. Between twenty and thirty men make a section of convenient size; when the number is greater than thirty, it is difficult to keep the exercise on an informal basis. The best success of the method will depend largely on the personal equation of the instructor. A case is assigned at the beginning of the hour, and the opening five minutes are devoted to silent consideration. Then some student is asked to state in general terms the problem or problems involved. This contribution will serve as a point of departure, and discussion of the case can then proceed. Usually the first business will be to enumerate the various possibilities in diagnosis, with the points in favor of

and against each. Data omitted from the case record may be supplied by the instructor, who will in a general way guide the discussion into profitable channels. Most of the actual talking, however, should be done by the students themselves. They are led to advance ideas, and to comment on and criticize those ideas. When a diagnosis has been reached, prognosis and treatment are taken up. These are discussed in the fullest detail, emphasis being laid on the manner in which they would be presented to the patient in actual practice. Finally the treatment carried out and the end-result in that particular case should be made known, and the reason should be considered for any errors of judgment that are discovered. An alternative plan is to announce beforehand what cases are to be taken up at a stated exercise, thus giving the student opportunity for preliminary thought and discussion. This method makes for economy of time in the classroom, but may detract somewhat from the spontaneity of the exercise, as students are likely to come with more or less fixed ideas. In last analysis, the most advantageous manner of conducting case-teaching exercises will gradually be evolved by each instructor from experience with his own particular group of students.—MEAKER, S. R.: *Am. J. Obstet. & Gynec.*, 14:210 (Aug.) 1927.

TEACHING OF FORENSIC MEDICINE

It can be said with truth and appositeness that in Scotland the universities and colleges have taken the teaching of this subject as an important item in the curriculum of the general practitioner. Chairs have long been founded in three of the universities, and a lectureship in the fourth, the length of courses being determined by the university ordinances and the regulations of the General Medical Council. Examination papers are

set for that subject at each final degree examination, and thereafter each student is examined orally and practically. In the Scottish colleges the subject, for diploma purposes, is bracketed with public health, two questions in each subject being set for answer, and an oral examination follows.

Is there any feasible and workable plan by which the average student might acquire more practical knowledge than hitherto he has been able to gain or is obtaining at present?

It has been suggested that during the curriculum the attention of the student might be directed to the medicolegal aspects of each subject: in medicine, for example, to the differences in behavior of acute and chronic gastro-intestinal diseases and the acute and chronic forms of irritant poisoning; in surgery to the significance of wounds and wounding from the point of view of causation; in botany to know what common plants and fruits are poisonous and which nontoxic; in pathology, not merely a voucher that the student has attended so many postmortem examinations, but that he has actually assisted in making or has himself performed at least one complete dissection. While that is not impossible, the retort comes that no teacher has sufficient time to teach even the subject with which he is charged, without traversing other fields. But even on the supposition that this were possible, it must be obvious that there are many departments of forensic medicine, comprehended in criminal charges, which the student cannot observe in his ordinary curriculum; for example, he is hardly likely to see a case of infanticide or criminal abortion, or to have seen carried out in detail the lines of investigation regarding productions of crime in the form of suspicious stains for blood on garments or weapons, or for semen in charges of rape, or of stains in cases of throwing of vitriol or other corrosives. Taking, however, more

ordinary things first, such as making a proper postmortem examination for medicolegal purposes, it seems to me that the average young practitioner at present has had little, if any, experience. But he may be called upon in England on the summons of a coroner to make or assist in making such an examination. In Scotland, on the other hand, the duty of appointing the medical practitioners to perform this work is in the hands of the procurator fiscal of the county in which the examination has to be made, and only even then when a warrant of the sheriff has been issued in set terms incorporating the names of the practitioners who are to conduct the examination. This duty in Scotland is made to devolve on experienced practitioners only, because very important issues may emerge from their examination respecting the cause of death, if such, as is commonly the case, be a culpable cause.

Experience indicates that the first essential of likely success in teaching this subject will be that the teacher should himself be actively engaged in a branch of the profession which deals largely with medicolegal problems, either in the capacity of a police casualty surgeon or as a medicolegal examiner. Such positions afford material ready to the hand of the teacher whereby he may illustrate many points of his teaching, while the medicolegal examiner as teacher, by utilizing the services of a few students at a time as assistants in examination of cadavers, will afford them opportunities of observing how to act and how to frame reports. Laboratory investigations may also be given to classes of students either in the lecture room, or in the laboratory itself, and demonstrations of microscopic objects and museum jar specimens can similarly be exhibited. The formation of a class museum of illustrative specimens is a valuable adjunct.

The more definitely legal aspects of the subject must in the main be treated didactically by lectures. The law has to be expounded in an easy manner to induce attention, for it is my experience that the average student fights shy of law, not realizing that such a knowledge is likely to conduce later to his comfort and assurance in doing medicolegal work. There must be a simple exposition of the laws of evidence, of the functions of the General Medical Council and its powers of discipline on those registered as medical practitioners, the penal offences constituting "infamous conduct in a professional respect"; some things must be said respecting the law of infanticide, etc., as to nullity of marriage, as to sexual crimes, and to insanity with respect to responsibility for crime; and several others. The subjects having medicolegal importance to the profession have, however, increased in later years—such, for example, as the National Health Insurance Acts, Workmen's Compensation Acts, Notification Acts, the Cremation Act, Death Certification, etc. A visit of a student to a court of law during a trial is worth much, in so far as it enables him to see the surroundings, hear witnesses being examined-in-chief and cross-examined, and to observe the conduct in these of members of the Bar.—J. GLAISTER: *British M. Jour.*, 2:448 (Sept. 10) 1927.

TEACHING OF OBSTETRICS

In most medical schools the time set apart in the curriculum for clinical obstetrics is too short. An absolute essential is that the work should be concentrated and that over a certain period it should be the only activity of the student. A period of actual residence in the hospital or in a hostel in connection with it is necessary if he is to get the full benefit.

In planning the student's course of clinical instruction emphasis should be

laid on diagnosis and this can be learned only in the prenatal clinics and prenatal wards. In all our teaching hospitals we now have large prenatal clinics which afford ample material for instruction. This should consist in a thorough training in clinical pelvimetry and abdominal palpation. It is most gratifying to find how quickly the student acquires proficiency in these if he is given the proper instruction and guidance at the beginning. It requires patience and time on the part of the teacher but these are amply repaid when he finds that after a short time his student can fairly accurately measure and type a pelvis, diagnose presentation and position and form an estimate of the relative size of head to pelvic brim. If we could insure that every graduate left his medical school with such a training, that he appreciated the importance of such examinations in every case and realized that a disproportion called for further examination and consultation before the onset of labor we could confidently look for a marked diminution in the maternal death rate within the next few years. It is well within our capacity to give such training and well within the capacity of the student of today to fully avail himself of it. In this one direction alone there are, therefore, great possibilities.

In the prenatal clinic also he must be taught the importance of the various complications of pregnancy, especially the early and late toxemias, the anemias, the heart affections, the focal infections. He should see carried out, and should carry out himself, a full physical examination of the patients, take their blood pressures, examine their urines. When abnormalities are detected he listens to the advice given them. He follows them into the prenatal wards when their condition calls for hospitalization. He is soon struck by the number requiring such hospital care. The student is thus

impressed with the importance of prenatal care and sees the rapid improvement in the patients as the result of appropriate treatment begun early. It is brought home to him that eclampsia is a preventable disease and to have it occur in a patient for whom he is responsible is a reflection on himself.

With such teaching and practice in the prenatal department the student is in a position to study and conduct labor.—WATSON, B. P.: *Am. J. Obst. & Gynec.*, 14: 281 (Sept.) 1927.

TEACHING OPHTHALMOLOGY

It appears to me that in many of the undergraduate teachings of the chair of ophthalmology the instruction is apparently designed from the assumption that the poor and overgorged medical student is to be made into an expert ophthalmologist in addition to specializing in bacteriology, chemistry, physiology, research, medicine and surgery. Can he not be taught along such lines that he will better appreciate the relationship of the eye to the general body; that while he should recognize the more serious special eye diseases, his knowledge will be chiefly along the lines of the reaction of the eye to general disease and the prevention of eye disease, and that he will fully realize that the eye is only a part of the general body? Any information he may receive until he elects to take up this specialty as a life work is merely designed to equip him to save injury to the eye and to recognize that period and condition when the practitioner should call in the consultant.—BROOKS, H.: *Ophthalmologic Needs of Internist, J. A. M. A.*, 89:1204 (Oct. 8) 1927.

MEDICAL EDUCATION

If it were feasible to increase the laboratory equipment and personnel, it would, of course, be possible to teach

larger classes without derogation to the quality of the teaching. But for most schools, the expenditures involved in such an increase are unobtainable. Few, if any, could procure from their university treasuries an increase of 30 per cent or more in their budgets for the first two years. To return to the laboratory and its relation to enrollment. If the present organization of the laboratory is an obstacle to increased matriculation, then the organization must be modified. In the present exigency, some way must be found to give laboratory instruction to, let us say, from 30 to 50 per cent more students. It can be done if those in charge of the fundamental branches are willing to co-operate in working out a plan to meet the present needs. While theoretically desirable, it is not essential that every student should handle the highly specialized instruments rarely if ever used by men in practice. I am not in favor of requiring a preliminary college degree at the end of a four-year college course. A three-year premedical course should be the maximum, and should lead up to a college degree at the end of the freshman year. I feel that something of the actual craft of medicine, something of the clinical branches, should be introduced early in the medical course, but not in tabloid form. I would let the freshmen attend one weekly clinic given to third-year men, and the second-year men one weekly clinic to the third- or fourth-year men. And when I use the word clinic I do not mean a didactic lecture. And at such a clinic, the teacher should not talk down to the lower classmen. There is another point that interests me; namely, that of latitude in the curriculum. If medicine is to take its proper place as a university branch, then it must get away from the hard-and-fast system which is so similar to that prevailing in secondary schools and most undergraduate colleges. The freedom

enjoyed by French and German students is worthy of transplantation to this country. Even the migratory habit that causes German students to take one course here and another there, wherever they can get the best instruction, might be cultivated by us. It would make for a broader outlook, for a greater culture, for earlier mental independence. —RIESMAN, DAVID: *Atlantic Medical Journal*, 31: 8 (Oct.) 1927.

CLINICAL TRAINING IN OBSTETRICS AND GYNECOLOGY

The chief object of this paper is to urge the importance of clinical training in these subjects being so arranged that the students while learning their science and practice should also be stimulated to acquire the preventive bent of mind. Preventive medicine will not be considered as a special branch of medicine, but as an attitude of mind that may be developed and fostered in all the clinical studies. Obstetrics and gynecology, especially if combined with or followed immediately by training in pediatrics, offer a particularly favorable opportunity in this regard, owing both to certain distinctive characteristics of the subjects and to the late stage in the curriculum at which they are taken.

During his service as medical clinical clerk and surgical dresser, the student has been taught from the pathologic side—from observation of diseased and injured—because clinical material in hospital is of this type and because it is easier to teach diagnosis to the beginner on cases of well-established disease with obvious physical signs. The alternative system of beginning from the physiologic side would appear to be the more rational sequence of the earlier nonclinical studies, but the testing of samples of the ordinary population in order to discover those showing weakness or early disorder of the bodily

functions would be difficult to organize under present conditions in hospitals. Certain branches of medicine are suited to serve as training grounds from the physiologic rather than the pathologic aspect, and among these branches midwifery stands out prominently, for the very reason that it is so largely concerned with the normal processes of reproduction and how to keep them normal.

Fifteen years' experience of having students working full time for three months in an "obstetric atmosphere" was a greater education to those responsible for their training. It made all of us realize the enormous value of "atmosphere." As time went on and the department expanded our ideas expanded also. The "preventive atmosphere" became more dominant, and on this account our department in the post-war years came into closer contact with the children's department. Although encouraged to attend, the students paid little heed to the clinics for well babies, for they had no examination value. The pediatrician however, held a clinic once a week in the maternity ward, which was attended both by the obstetric clerks and by the clerks in the children's department. The next step was to amalgamate the two departments and thus increase the length of time spent in the "preventive atmosphere," and also the strength of "prevention" in it.

Under the scheme each student gives six months' wholtime service to the combined study of obstetrics, gynecology and pediatrics. Roughly the six months' service is divided equally between obstetrics, gynecology and pediatrics. Residence in the hostel and within call is now extended to two months, during which the student's time is portioned out between the antenatal clinics (four sessions a week), the clinics for well babies (two sessions a week), the practice of the maternity ward and attend-

ance on intern cases for the first month, and extern cases for the second month. Four to six obstetric clerks are on duty at a time and take their maternity cases in pairs, but a general call to all students in residence is issued for abnormal cases in the maternity ward.

The second two months is occupied by clerking and dressing in the gynecologic department and the final two months in the clinics for well and sick children, clerking in the children's medical ward, with attendance at gynecologic outpatients on two sessions a week. In teaching the practice of obstetrics and gynecology the chief difficulty that faces the teacher is that of giving the student direct clinical experience of various complications of labor and obstetric manipulative procedures and of bimanual examination on sufficiently large numbers of patients with normal and abnormal pelvic organs. The antenatal clinic with its frequent attendances of women in all stages of pregnancy affords almost unlimited opportunity for acquiring skill in abdominal diagnosis and external manipulation and of learning the supervision of pregnancy.

The duty of the medical staff is to maintain a technic of high standard so that the student, after spending a month under its influence and witnessing and conducting labors as carried out according to the ordinary practice of the labor room, will acquire a habit that he will carry with him through his future practice. For the abnormal cases, on the other hand, the constant presence of an experienced member of the staff is necessary, and that is undoubtedly a weak spot in our teaching. It will be generally accepted that the principle of a *chef de clinique* living in the hospital—such, for instance, as the Master of the Rotunda—is the most satisfactory system for large institutions, but few obstetric and gynecologic departments of a general hospital can provide the material

to justify such a policy. An experienced resident chief for large maternity hospitals (especially if amalgamated with the hospitals for women) is the ideal for the training of students. The one thing in favor of the small unit within the large general hospital is that the resources, both in personnel and material, of the general hospital become available.

The teaching of obstetric manipulations must be largely carried out on the model, but should be kept in close relation with clinical midwifery—e.g., immediately after practice in the ward and on the district. The object of the teacher is to use the procedures the student has actually witnessed as the foundation and to build on them both the details of those manipulations he has seen and the whole procedure in those he has not seen. The proper supervision of the student while attending labors and visiting patients on the district presents a somewhat difficult problem because someone more experienced than a temporary house officer is required. The removal of acute puerperal infections and venereal infections from the immediate purview of the student makes it necessary to arrange special clinics elsewhere.

Gynecology also has problems of its own. The material in hospital wards is far too largely made up of women admitted for operative treatment, and is in no way representative of the gynecology of family practice. Diagnosis, both by abdominal and bimanual examination, can, however, be most readily acquired in the wards; the all-important point is that the outpatient department should be used to its fullest extent for teaching minor gynecology and that a selection of minor cases for indoor treatment should be made. Gynecology has to be taught almost wholly from the pathologic side. Attention must be concentrated on all injuries and diseases arising out of the exercise of the reproduc-

tive function and their causation and prephylaxis discussed fully, as well as the measures to be taken for their care or relief. Neither the physiology of the reproductive process nor the pathology of the reproductive tract receives much attention in the students' previous studies, and the opportunity should be taken to give this instruction during the time of service in the department. The more closely this teaching can be kept to the patients under observation the better. All pathologic material should be demonstrated, naked eye and microscopic, as part of the clinical case and discussed from its clinical as well as its scientific aspects. In these demonstrations opportunity readily offers to show other and related conditions, so as to fill in what the student may not have seen clinically. Also normal material from abortions, placenta, etc., and the histology and the normal pelvic structures may be conveniently studied in comparison with morbid conditions.—FAIRBAIRN, J. S.: *Lancet*, 2:163 (July 23) 1927.

TEACHING PATHOLOGY IN ITS RELATIONS TO CLINICAL MEDICINE

Three years ago I instituted at Bellevue Hospital a method of teaching intended to correlate clinical observation with laboratory procedures. Each year the interest of the students has been so obvious and their expressions of appreciation have been so genuine that I am venturing to call the attention of other teachers to this plan of instruction. The course is given as an elective to a group of six students who attend at the hospital daily from 10 o'clock in the morning until 4 or 5 in the afternoon for a period of a month. I go with them to the wards and discuss and examine with them patients who are selected because of objective signs of disease and in whom it is apparent that the bedside

diagnosis is eventually apt to be verified or denied by such laboratory procedures as the histologic examination of tissues removed by biopsy, operation or autopsy or by chemical, bacteriologic, serologic or other laboratory methods fashioned to supplement clinical observation. Each student keeps a notebook in which he enters a brief record of the patient's clinical history, the physical observations, the nature and result of the laboratory procedures, and the final diagnosis, and each receives for his personal collection a microscopic section of all tissues removed by biopsy or otherwise, photographs of the more spectacular lesions, and copies of the autopsy protocols of the cases they have investigated clinically. In order to conduct such a course, the pathologist must be interested in clinical medicine and must have at hand not only the laboratory but also the clinical facilities of a hospital of large proportions and, above all, he must have the co-operation of the visiting and resident staff. At Bellevue Hospital this co-operation has been accorded with such warmth that to the clinical departments must be allotted an equal measure of whatever credit accrues to the tutorial effort I am now attempting to describe.

METHOD

For purposes of presentation, this method of correlating pathologic with clinical events may be outlined as follows:

1. *The Visit of the Students to the Wards.*—The first year that this course was given the students saw 120 patients in the wards, in 45 per cent of whom accurate diagnosis was established by biopsy, operation and subsequent histologic examination, autopsy or other laboratory methods. The next year the students saw 137 ward cases and, of this number, 56.6 per cent were similarly concluded. In the present year they saw ninety-six cases and, of this number, 52 per cent

were eventually closed from the standpoint of diagnosis by the application of exact methods. Of these ninety-six cases—and this, I think, is a fair representation of the variety of diseases encountered in the two previous years—there were twenty malignant tumors, including one melanosarcoma attended by melanuria and confirmed by biopsy and autopsy, and a second case with biopsy; a case of carcinoma of the thyroid associated with hyperthyroidism; two cases of adenocarcinoma of the mucous glands of the nose, one with biopsy and autopsy, the other with biopsy alone; two carcinomas of the stomach with autopsy; one giant and spindle cell sarcoma of the leg with biopsy; one instance of generalized adenocarcinoma of the lymph nodes from a clinically undetectable tumor of the thyroid, the picture simulating that of Hodgkin's disease; and eleven examples of epitheliomas arising in various parts of the body. In addition, there were eleven nonmalignant tumors or tumor-like growths, including a fetal adenoma of the thyroid associated with hyperthyroidism; two intravascular papillary adenomas of the thyroid, likewise associated with hyperthyroidism; a massive uterine myofibroma; a large fibroma of the gum; one pigmented mole; two intracanalicular adenofibromas of the breast; a branchiogenetic cyst; a lipoma of the back, and an exostosis of the femur. In addition, the students saw a number of tumors of doubtful nature, including a massive growth in the thymic region; one of the sigmoid and one of the rectum; several examples of clinically typical but nevertheless unproved carcinoma of the breast and stomach, and a case of multiple abdominal masses of undetermined nature.

Other clinical cases, some of them of demonstrated nature and others doubtful, included an early example of Darier's disease; five cases of trichinosis; one case of Gaucher's splenomegaly with

splenectomy and extensive histologic studies of sections of spleen and liver stained by various methods; acute and chronic lymphatic leukemia; chronic myelogenous leukemia; pernicious anemia; monarticular arthritis of pneumococcal origin; a massive bilateral hydrocele; biopsy in a case of suspected actinomycosis; gout with multiple deposits and microscopic demonstration at the bedside of crystals of sodium biurate; suspected blastomycosis, biopsy from which revealed a granuloma of unknown nature; three cases of thrombo-angiitis obliterans, one of them with amputation and microscopic examination of the involved tissues; a massive abscess of the leg in which, clinically, sarcoma was suspected, but whose nature was proved by aspiration of pus and the cultivation therefrom of hemolytic streptococcus; a case of Addison's disease; one case of pellagra; one of subacute bacterial endocarditis, with the presence in the blood of a pure culture of *Streptococcus viridans*; a case of extensive syphilitic lymphadenitis simulating Hodgkin's disease, and a gumma of the sternum and one of the periosteum of the tibia, both of them disappearing under antisyphilitic treatment.

2. *Special Instruction by Associated Laboratory Workers and Clinicians.*—On three afternoons, from 2 until 4 o'clock, the students were given a systematic course in diseases of the blood by Dr. Richter. One afternoon a week throughout the month was spent in the department of syphilology with Dr. Parounagian, in the course of which time they saw almost every conceivable variety of clinically demonstrable syphilitic lesion, since, in Dr. Parounagian's clinic, from 300 to 400 such cases are seen every afternoon. Here, too, they became familiar with the technic of dark-field illumination in the detection of spirochetes in active syphilitic lesions. On three occasions, from 9 to 10 o'clock in the morning, the students attended

Dr. Feigin's lectures on psychiatry. Three visits were made to the department of roentgen-ray therapy, where Dr. Kaplan showed them certain features of the application of roentgen-ray and radium therapy and its results. This year the students came to Bellevue Hospital almost at the moment that I was asked to introduce and supervise the antitoxin treatment of erysipelas. In the course of their month in the hospital, they made rounds with me in the erysipelas wards every morning. This enabled them to familiarize themselves with almost every clinical aspect of erysipelas, as revealed by about seventy cases, and to follow from day to day the remarkable results of the antitoxin treatment.

3. *Autopsies.*—Last year every student performed a complete autopsy under supervision, receiving later a copy of the protocol and a set of histologic preparations from the several organs, each case being discussed by the entire class from the standpoint of the clinical, anatomic and microscopic observations. This year I was handicapped by an infection and was unable to carry out this part of the program. On all subsequent occasions, however, I hope again to see to it that every member of the group receives similar privileges in the autopsy room. —DOUGLAS SYMMERS, *Jour. Am. Med. Assn.* (Aug. 20) 1927.

RESEARCH ON MEDICAL EDUCATION IN ITALY

According to the *Policlínico* (34: 1055, July 18, 1927), the Italian Minister of Public Instruction has sent the following questionnaire to all the Italian medical faculties:

1. How could scientific aims be best reconciled with the professional preparation?

2. Is it advantageous to divide the study into a preparatory course and a course of clinical application?

3. How long should the study last, and, if it is advisable to separate it into two periods, how long should each period be?

4. Should a period of practice in the clinics and hospitals be required between the completion of the medical studies and the admission to the state examination?

5. How should this period be regulated?

6. Should the doctor's degree be conferred at the end of the studies or after the state examination or after another course of studies following this examination?

7. How should this further course, if advisable, be regulated and how long should it be?

8. Should the courses be divided into compulsory and elective, and if so, which courses should belong to the first category and which to the second?

9. Should some courses be given for more than a year and which courses should those be? Which courses would require less than a year?

10. Is it possible to group, for the purpose of examinations, several subjects together? Which subjects?

11. Is it advisable to unite in one institute several similar and connected subjects in order to insure unity in the teaching?

12. Should it be required to pass the examinations of the preceding year in order to register for the next year?

13. Should there be a special examination for the preparatory course and for the course of clinical application?

14. How wide should the teaching of special clinics be?

15. What regulations should be given to a postgraduate course for specialists?

16. Should the number of registered students be limited according to the didactic means of the respective faculties?

UNDERGRADUATE TRAINING IN MEDICINE

The primary function of a great undergraduate medical school is to produce the first-class practitioner. The aim of our undergraduate course has been to train you as physicians. Our purpose has not been to train you to be physiologists or pathologists, still less to be chemists or zoologists. The same consideration applies in large measure to surgery, for there is a great deal of surgical practise you will never think of doing unless you have special training and indeed become specialists. Hence it is that we regard the training in medicine as basal and essential as no other training is. Physiology is the essential basal science on which medicine is founded. Hence the importance of the training in physiology cannot be overestimated. Medicine owes much of its progress to the specialization of physiology, pathology, and the other basal sciences. But medicine will never be a pure science; it is an art based on sciences. There is, indeed, I venture to think, a progressive danger in the schools, a direct consequence of the growth of knowledge, which threatens the training of the future practitioner, for it stands to reason that the scientific expert, the product of specialization whose primary consideration is research, cannot be expected to realize to the full the relative application of the science of physiology to the demands of medical practise. The time has come, I believe, when the student's training in physiology should be supplemented by the addition of a course of applied physiology given by a practising physician. The mental outlook of the practitioner must be essentially clinical and the cultivation of an attitude of mind which under-estimates clinical observation, and attaches undue importance to the results of the laboratory and to methods of precision, constitutes a grave menace to

the undergraduate training at the present time. Much more importance should be attached to the student's work in the hospital, and he should receive much more encouragement than he does at present to think and read in direct relation to his clinical work, for this is the only way to acquire a real knowledge of medicine. Systematic teaching forms a necessary part of the training in medicine, but its true place is complementary to the student's work at the bedside, and the separation of systematic from clinical teaching is an anachronism. The greatest objection to the complete course of systematic lectures is that it tends to discourage the habit of independent reading, the student believing that a knowledge of his notes is all that is necessary for examination purposes.—Undergraduate Training in Medicine, EDWIN BRAMWELL: *Edinburgh M. J.* 34: 746 (Dec.) 1927.

ANTHROPOLOGY AND MEDICINE

The bearing of anthropologic knowledge on different branches of medicine is so intimate and important that a first-class medical education today without the anthropologic aspect of things must necessarily be incomplete and constitute a serious handicap to the graduate, which he may never be able to overcome. This fact has long been recognized in anatomy, with the result that every prominent anatomist is also more or less an anthropologist. It is strongly appreciated in Europe, and there are already a number of outstanding medical schools in this country, such as Johns Hopkins, Harvard, Rush, and those of the University of Virginia, Western Reserve at Cleveland, Washington University at St. Louis, and Leland Stanford, where some anthropologic instruction at least is given to the medical student, which is supplemented in most of these establishments by opportunities for original anthropologic observations. In

view of the value of such instruction and research, both practical and scientific, it is safe to predict that in the not far distant future no medical college of high standing will feel justified to go on without adding a substantial course of anthropologic instruction to its curriculum. Some would do so at once, were enough anthropologists available.—ALEX. HALLICKA. *Am. J. Physical Anthropology*, 10:1 (Jan.-March) 1927.

MEDICAL EDUCATION IN SWEDEN

Sweden has only three universities with medical schools, Lund, Stockholm and Upsala, but a student, who begins his medical studies at 18 years of age, cannot expect to pass examination before the age of 26 or 27 years. If he wishes to specialize in any line he has to get the special training after graduation, and thus reaches 30 years or more before he is ready to practice. The studies are divided into two parts, and two separate degrees are conferred. The first part, which confers the degree of Candidate for Medicine, comprises anatomy, physiology, chemistry and so on, requires about four years of study. After passing that examination, the student is admitted to the second part, which confers the degree of Licentiate in Medicine. It comprises the clinical subjects, internal medicine, surgery, pediatrics, etc., and requires from four to four and a half years of study. He is not allowed to practice until he has passed this second examination. This clinical training consists of ten months for surgery, eleven months for internal medicine, three months for pediatrics, four months in obstetrics and gynecology and so on. Students are not allowed to combine more than a few of these subjects. As to the training of the students in obstetrics and gynecology—they must do four months work in the hospital. Every four months, eight students are admitted

at a time. During those four months they live in the hospital as internes and they are not allowed to occupy themselves with any other subject or any other clinic. During the first two weeks, they get an introductory teaching in normal pregnancy and labor and then a training in performing obstetrical operations on mannikins. After that they are admitted to attend normal labors in the delivery room, at first under supervision, but later independently and on their own responsibility. Furthermore, they have to join in the professor's daily visit in the wards, to make the records and the ordinary examinations, and to be present, by day or by night, at operations for obstetrical interferences. Every student at the end of the four months has himself conducted an average number of forty-five normal labors; has made one or two applications of forceps, a version or other obstetrical operation and about sixty gynecological examinations.—ELIS ESSEN-MOLLER: *Michigan State M. Soc. J.*, 27:26 (Jan.) 1928.

Book Reviews

HANDBOOK OF DISEASES OF THE EAR

For the use of students and practitioners, by Richard Lake, F.R.C.S., Eng. and E. A. Peters, M. D. Cantab., F.R.C. S. Eng. Fifth edition. William Wood & Company, New York, 1927. \$4.00.

In the preface, this work is said to be a revision of the fourth edition, brought up to date, which is true of the labyrinthine diseases and disturbances, but some subjects show traces of dating back fourteen years; e.g., the local use of opium and of cocaine in earache. In the description of the neurology of the labyrinth, of the four nuclei of the vestibular nerve only Deiter's is men-

tioned. The functional hearing tests, while correct, are entirely too detailed and unsystematic, so as to become confusing instead of educational. The proportional Rinne test, for instance, could be omitted with profit. Incidentally, Rinne was a German and should not have his name spelled with an accent over the "e," a common error in textbooks. In the designation of tuning forks, capital and small "c" are constantly used incorrectly, and in some cases the exponents also.

The author adheres to the idea of the pathologic relationship of otosclerosis and chronic adhesive and other inflammatory processes, a not widely accepted idea. He also insists on designating nystagmus by the direction of the slow component, which is theoretically logical, but not the practice by anyone else, and, therefore, serves to confuse an already difficult subject. On the other hand, the author introduces a number of ideas of his own indicating more than usual resourcefulness in treatment. One of them is his incision which gives better access to the labyrinth than the classical incision. He also presents his own ideas on hysterical deafness and malingering.

THE QUEEN CHARLOTTE'S PRACTICE OF OBSTETRICS

By the following members of the staff of the hospital: J. Bright Banister, M. S., F.R.C.S.; Aleck W. Bourne, M.B., F.R.C.S.; Trevor B. Davies, M.D., F.R.C.S.; L. Carnac Rivett, M.C., F.R.C.S.; L. G. Phillips, M.S., F.R.C.S., and C. S. Lane-Roberts, M.S., F.R.C.S., with 4 colored plates and 270 text figures, 629 pp. Price \$7.00. William Wood & Company, New York, 1927.

This book is very readable. It is written to set forth the views held and methods practised by those at present connected with the staff of Queen Charlotte's Maternity Hospital. For this

reason it does not describe a variety of opinions or of treatments. Thus it excludes itself as a textbook for students.

The chapters on sepsis and abnormalities of the puerperium are particularly well written. The treatment advocated has the unqualified approval of the reviewer.

The rather frequent use of pituitrin in the treatment of inertia uteri and other abnormal conditions of labor previous to the birth of the child is to be condemned. It is also difficult to understand why manual dilation of the cervix is recommended in preference to the use of the colpeurynter. In delayed labor no mention is made of the use of morphine or other analgesics.

The chapter on injuries to the genital tract during labor could be much improved. The repair methods used by the hospital staff are left much to the reader's imagination.

In the chapter on resuscitation of the baby, the use of the tracheal catheter, lobelin and adrenalin are not mentioned.

It is difficult to understand why it is necessary in every case to anesthetize the patient when inserting a bag or bougie to induce labor. It is to be regretted that the staff does not advocate the use of the lower uterine segment cesarean section, especially in view of the fact that their maternal mortality rate is 5.8 per cent.

The illustrations, make-up of the book and the print are good. The reviewer enjoyed reading it.

THE PRACTICE OF UROLOGY AND SYPHILOLOGY

Charles H. Chetwood, M. D., L.L.D.,
F.A.C.S. Fourth edition, 1927. William
Wood & Company, New York.

This book is ideally academic. By this is meant that it should be an outstanding text for medical students. The subject

matter is easily read and digested. The contents are most complete and modern; this completeness is not marred by cumbersome details or ultra-scientific theories. The illustrations are very adequate. All the above does not detract from the original intention of the author to make his book a practical one. No one will deny its practicality to the busy doctor. The author first discusses the anatomy and embryology of the urogenital tract. This is followed by three chapters on the diagnosis of sexual and urinary maladies. The care and use of necessary instruments are well described. Instrumentation and careful physical examination of the patient are stressed. One of the most outstanding features of the book is the author's very thorough discourse on the clinical, chemical and bacteriological examination of urine. Urethroscopy and cystoscopy are given high rating in urological diagnosis. There is a comprehensible explanation of functional renal diagnosis and roentgenography. From here on the author describes the maladies of each urogenital organ; also their general, local and operative treatment. In bladder diseases, the use of cystoscopic fulguration of tumors is stressed. Regional and local anesthesia in urology are briefly described. The functional disorders which occur so frequently in the urinary and sexual organs are very sanely discussed. The fascinating story of the upper urinary tract, with its abnormalities, tumors, calculi and infections, concludes Part I.

In Part 2, chancroidal and luetic lesions are described. Pathology and treatment are emphasized. The best ideas of the use of modern antiluetic medication are included.

Because of the vast amount of experience of this author and his ability to write tersely but lucidly, this book should be valued highly as a teaching text.

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